PAPER TRADE JOURNAL

Reg. U. S. Pat. Off.

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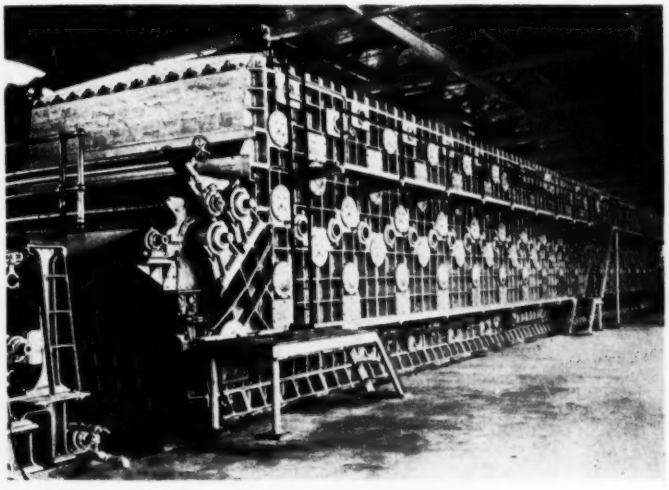
THE MINTON VACUUM DRYER



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Minton Vacuum Dried newsprint is now selling at a PREMIUM over similar paper not so dried.

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Solvent Sizing makes it possible to produce paper of a quality never before possible with a higher Mullen, higher tear, better permanence, and better sizing. It is easier to make and it is easier to sell such paper. The cost is less.

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Vortex Beater

THE "VORTEX PRINCIPLE" is acclaimed the greatest improvement in stock preparation methods since the invention of the original Holland Beater. It reduces beating time because of faster furnishing, rapid circulation, short distance of stock travel, improved beating action and quick dumping. The vertical, whirlpool circulation saves the power wasted in the horizontal stock flow of a standard beater. Let us estimate what savings you could obtain with the Downingtown Vortex Beater . . . The Downingtown Mfg. Co., Downingtown, Pa.

BEAT YOUR BEATING COSTS WITH A DOWNINGTOWN VORTEX

Entered as second class matter at the Post Office at East Stroudsburg, Pa., under the Act of Congress of March 3, 1879. Published every Thursday by the Lockwood Trade Journal Co., at 34 N. Crystal St., East Stroudsburg, Pa. Executive and Editorial offices: 15 W. 47th St., New York, N. Y. Domestic subscription U. S. and possessions, $4.00 per year.

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SIXTY-FIFTH YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

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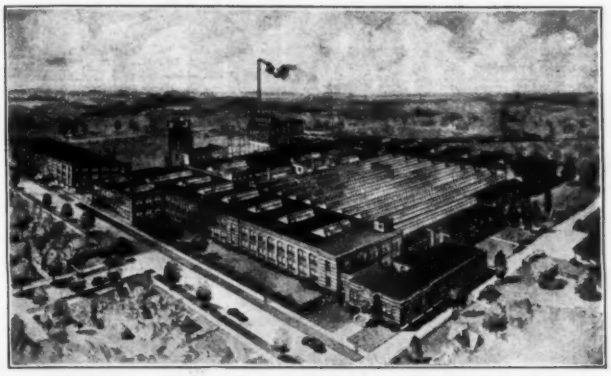


THE HOUSE OF ORR SUGGESTS A TEST

No ordinary line of felts ever built the big modern plant reproduced above.

On the contrary, that plant was built by the Orr line supported by the goodwill of hundreds of paper mills.

Perhaps you are an Orr user. If so, fine and many thanks; if not, you are invited to compare the performance of Orrs with the performance of the make you are using. It is highly probable that you will learn something very much to your advantage.

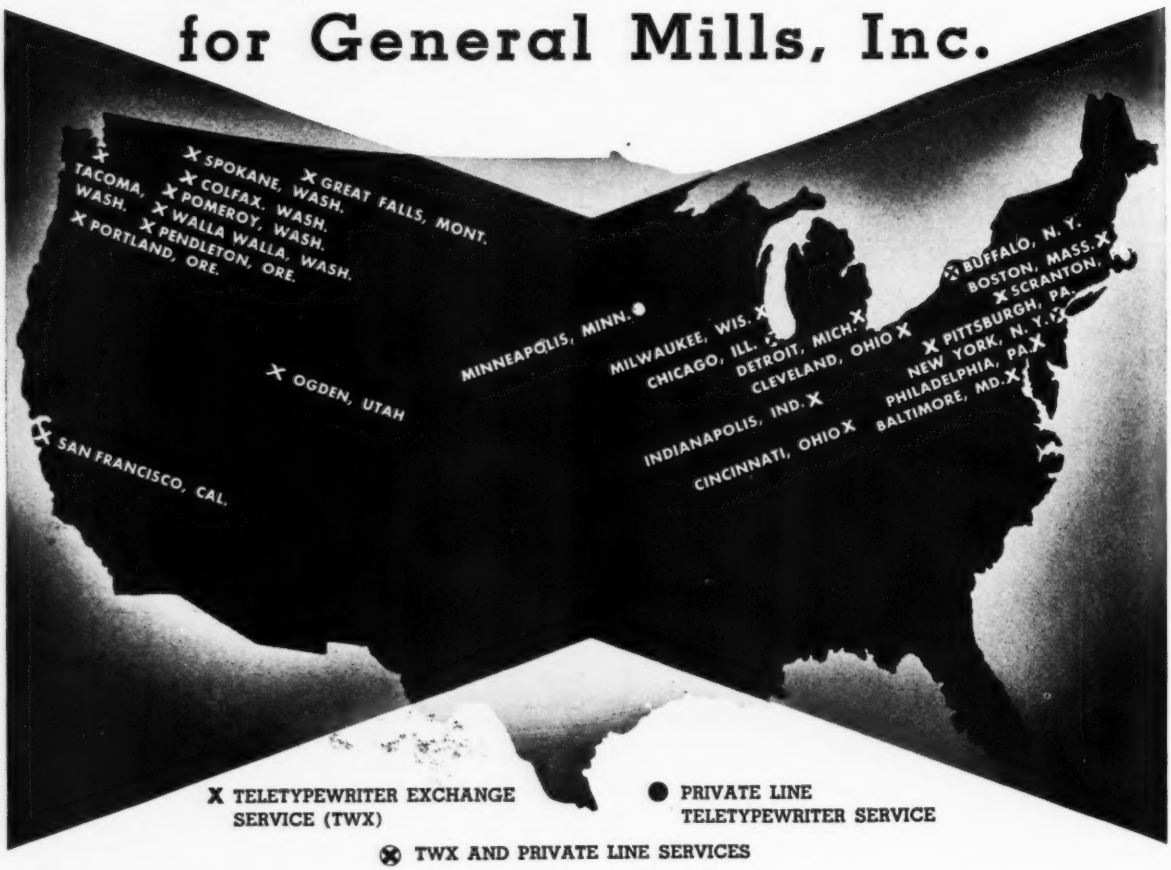
THE ORR FELT AND BLANKET COMPANY
PIQUA, OHIO

ORR FELTS

Teletypewriter Service helps raise flour into

DOUGH

for General Mills, Inc.



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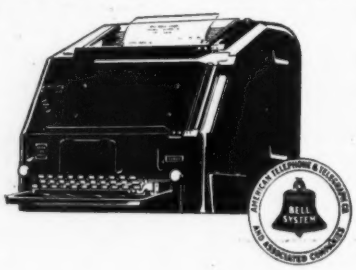
● PRIVATE LINE TELETYPEWRITER SERVICE

⊗ TWX AND PRIVATE LINE SERVICES

Not so many years ago, flour milling was among the most decentralized of all major American industries. Since Washburn Crosby Company installed Bell System Teletypewriter Service in 1922, the service has been aiding General Mills, Inc., and its associate companies in effecting the great change from the local flour mill to the modern co-ordinated industrial organization reaching from coast to coast.

Today, by Teletypewriter Service, the Minneapolis Headquarters of General Mills, Inc., keeps in close touch with every major grain market, and with sales offices from the Atlantic to the Pacific. Teletyped orders link each milling plant closely with its customers. Every part of this great organization feels the stimulus resulting from the speed and accuracy of this modern, two-way "typing-by-wire" service.

If your factories and sales offices are scattered across the country, or even in neighboring cities, Bell System Teletypewriter Service may prove equally valuable to your business. Call the Business Office of your local telephone company. A trained representative will study your communication needs with you. No charge or obligation, of course.



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Spot Price of Newsprint Paper May Advance

Opinion Expressed In Canada That Prevailing Heavy Consumption May Result In Shortage of Stocks Late This Year—Some Mills May Have Pulpwood Shortage—Price Bros. & Co. Reported Operating At Full Capacity

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., September 14, 1936—Speculative interest in newsprint securities which for some time past has been a feature of the stock market here, has been focussed during the past week on the common shares of Price Brothers & Co., and the supposition has been advanced that negotiations for the reorganization of the company have taken a step forward. So far as can be established in well-informed circles there is little or nothing doing of a specific nature in this connection. More tangible ground for the marked interest may be found in current operations of the company, which are reported to be at capacity, and in the fact that the company will receive a very substantially higher price for its important quota of South American tonnaged newsprint. In some quarters there is heard suggestions that the company will be included in an important newsprint merger, but little information is available to suggest that such a plan has reached anything like a concrete stage.

Rising Tide of Newsprint Consumption

Meanwhile close observers are much impressed with the rising tide of newsprint consumption. In some directions there is more than ever an inclination to the view that a shortage late this year may result in a considerable advance in the spot market. The increase in the operating ratio of the Canadian newsprint mills in the past year has been spectacular, and as a result it is suggested in some quarters that some mills may be caught short of wood. During recent years the state of the industry and of its finances has dictated that wood operations be conducted at a minimum, with mills most concerned concentrating on reduction of existing wood piles.

One result is that pulpwood cutting may be more extensive in the coming winter than for some years past. Provincial governments are co-operating to this end. The New Brunswick government, for instance, has announced that there will be no change in the reduced stumpage rates now in effect, despite the fact that an increased cut of pulpwood and lumber generally is anticipated.

Consolidated Earnings Increase

The funded debt of Consolidated Paper Corporation, consisting of $51,406,900 of 5½ per cent bonds, due July 2, 1961, went on a fixed interest bearing basis as from July 2, 1936, and the first semi-annual payment is due January 2, 1937. For the fiscal year ended March 31, 1936, the company reported earnings very substantially increased over the preceding year, but still falling short by about 20 per cent of the annual interest charge before depreciation.

Gross operating profit for the fiscal year ended March 31, 1936, was reported at $3,238,897, which contrasted with $1,963,243 in the preceding year. After deductions for salaries of directors and executives legal fees, bank interest and carrying charges, etc., but before bond interest or depreciation, there was shown a net profit of $2,269,450. Annual interest charge would amount to $2,827,379.

Recent Shipment for Australia

Taking the largest single shipment of newsprint paper ever shipped by the Mersey Paper Company, Liverpool, N. S., the freighter *Justitia*, of London, England, has loaded a cargo of 5,690 tons for the Australian market. Incidentally the ship is the largest ever to load at Liverpool, N. S., with a total capacity of 9,500 tons deadweight, and a registered tonnage of 2,767 tons. She carries a crew of 34 and came direct from Cardiff, Wales, in ballast.

Expansion for B. C. Pulp Co.

From Vancouver it is announced that in continuation of its program of modernization, the British Columbia Pulp and Paper Company has commenced installation of a hog-fuel conveyor system in its Port Alice plant at a cost of approximately $50,000. A further $30,000 is being spent at the same plant for installation of a system of pre-heating air for the boilers.

Hog-fuel for the plant will be supplied by Vancouver Island mills, which are spending some $30,000 for equipment necessary for this additional business. Four hulks have been acquired by the paper company to transport the fuel.

Completing Pulp Units

The company is just completing installation of chemi-pulp units at both its Port Alice and Woodfibre plants at a cost of some $200,000, including the erection of acid accumulator buildings and installation of automatic gas relief control systems. Steam flow meters were installed on the digesters at the Port Alice plant, similar to those already in use at Woodfibre.

Consolidated to Develop Knowlton Power Unit

President George W. Mead Announces Work On Big New Hydro-Electric Project At Battle Island On Wisconsin River, Will Begin In Near Future—Eau Pleine River Reservoir Will Probably Be Completed Next Month

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., September 14, 1936—Within the next year or two the Consolidated Water Power and Paper Company, Wisconsin Rapids, Wis., will begin development of the $1,500,000 Knowlton hydro-electric power unit on the Wisconsin River at Battle Island, according to announcement of George W. Mead, president. He made this known at a dinner held last week for company officials and others at Archie's Cafe, near Knowlton, Wis. The group included county and town officials, staff members of the Consolidated company; D. C. Everest, vice-president of the Wisconsin Valley Improvement Company; officials of the Chamber of Commerce at Wausau, Wis., and others.

The Knowlton project is the second unit in the program of reservoir and power development of the Wisconsin Valley Improvement Company in the Eau Pleine River and Knowlton region in Marathon county. The first unit, the Eau Pleine River reservoir covering 7,000 acres and costing $700,000, will be completed about November 15.

More of the guests at the dinner spent the day viewing the construction work, and then heard the program explained in detail at the meeting.

Roy Cromwell, engineer of the George W. Condon Company, Omaha, Nebraska, which has the contract for the reservoir, explained that the dyke and dam are 8,000 feet long. The dyke is 200 feet wide at its base, and narrows to 12 feet at the top. The dam is of solid concrete and sets on solid rock. The retaining walls, 450 feet long, are 40 feet high. The river is to be raised 40 feet.

The Big Eau Pleine River will normally fill this pond during the year to ten per cent beyond its capacity, but eventually the deep basin also will be filled from the Wisconsin River above Mosinee, Wis., through artificial canal. The latter canal, together with a tunnel from the Big Eau Pleine to the Little Eau Pleine River, a reservoir dam on the Little Eau Pleine, and extensive highway projects made necessary in that area, will comprise the third unit in the development program.

A. M. Van Douser, president of the Wausau Chamber of Commerce, presided at the dinner session. Mr. Mead spoke briefly of the project, and W. F. Thiele, Consolidated engineer, reviewed its history. Tom Utegaard, construction engineer of the Consolidated, also spoke and announced that the Big Eau Pleine dam will furnish 2,400 continuous horsepower for one working year. The work is being done by a crew of 125 men, working in two shifts of ten hours each.

Construction work is well under way on the new control dam for the water supply of Lake Winnebago, on the Fox River at Menasha, Wis. The dam will be of solid concrete, and will replace an obsolete wooden structure. Three crews of ten men each are working in eight-hour shifts day and night so as to complete the dam by the latter part of November.

The new dam will include two sluice gates at the south end and a concrete spillway at the north end. It is being constructed by the United States War Department at an approximate cost of $70,000.

Although the crest height will remain the same, the new dam will have an approximate 15-foot downstream concrete slope instead of the former abrupt drop. Sheet steel will be used for reinforcement. Sportsmen are endeavoring to have fishways built at the dam so fish going upstream in the spring to spawn can reach Lake Winnebago. No provision was made in the plans for these, although the concrete slope is said by engineers to make an easier hurdle.

Paper Chemistry Institute Augments Staff

Two new staff appointments have been announced by the Institute of Paper Chemistry, Appleton, Wis. Gilbert H. Barnes, Jr., a graduate of Ohio Wesleyan University, has been appointed administrative assistant to Dr. Harry F. Lewis, dean. He has had general industrial experience. George Sears, a graduate of the University of Wisconsin, has become a research assistant.

Eighteen members of the class entering the Institute this fall departed last week by bus and train for Northern Michigan, where they will spend a week at Witch Lake for a study of wood technology. They will be quartered at a lumber camp, and will be in charge of Mr. Barnes. Lectures will be given in wood identification, logging operations, cooperative measures between producer and pulp mill, scaling and measuring of wood, cruising practice, planning of logging operations, wood cost from stump to car, administration and conservation.

Dr. Lewis will spend one day with the group. He returned recently from a meeting of the American Chemical Society at Pittsburgh, Pa., where he was one of the speakers. Dr. Herbert L. Davis, research associate, and S. I. Aronovsky, resident fellow at the Institute, from the Northwest Paper Company, Cloquet, Minn., also participated in the meeting, and will return for the opening of Institute sessions.

News of the Industry

Taxes to be paid by public utilities in the paper mill districts have been announced by the Wisconsin Tax Commission. Among these are: Wisconsin Power and Light Company, $923,665.50; Wisconsin Public Service Corporation, $756,738; Flambeau Improvement Company, $44,514; Wisconsin Valley Improvement Company, $22,257; Eau Claire Dells Improvement Company, $35,611.20; Green Bay and Mississippi Canal Company, $26,708.40; Nekoosa-Edwards Light and Power Company, $3,115.98; Northern States Power Company, $523,939.50, and Wisconsin Michigan Power Company, $273,761.10.

Completion of a large addition by the Central Paper Company, Menasha, Wis., was celebrated by the employees Saturday evening, September 12, with a "family reunion." Approximately 150 persons gathered in the new building for a dinner and formal dedication. The evening was spent in dancing and card playing. The new building is 93 by 60 feet in size and will be used for storage.

Frederick A. Holzknecht, representative at Milwaukee, Wis., of Woelz Bros., paper wholesalers, of Appleton, Wis., and Miss Lucille Mancheski, Stevens Point, Wis., were married at the Church of the Annunciation, Green Bay, Wis., last week. They are on a wedding trip through the southern states and will be at home after October 1 at 1503 Kane Place, Milwaukee.

Michigan Mills Arrange for Canadian Pulpwood

Current River Ground Wood Plant of Abitibi Power & Paper Co. to Be Placed in Operation in Preparation for Putting in Commission the Second Newsprint Machine of Thunder Bay Mill—To Enlarge Port Royal Mill

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., September 15, 1936—C. W. Cox, M.L.A. who is mayor of Port Arthur, returned home lately from Toronto, and stated that contracts for 100,000 cords of pulpwood would be signed for delivery of the wood to mills in Michigan and Wisconsin during the coming winter. He added that the 100,000 cords for export would be in addition to the quantity cut in the Thunder Bay area for the local market during the coming season. Mr. Cox stated that arrangements had been made for the operation of the Current River groundwood pulp plant of the Abitibi Power and Paper Company in preparation for placing the second newsprint machine of the Thunder Bay mill in commission. Between 40 and 50 men are now employed in the Current River plant.

To Salvage Burned Wood

50,000,000 feet of white pine, red pine, spruce and other woods will be salvaged in the northwestern part of Ontario through a large area in Rainy River which was swept by fires during the past summer. It is said that it will be the largest salvaging operation in the history of the province. An agreement has been reached between the Ontario government and the Shevlin-Clarke Company, Ltd., and J. A. Mathieu Ltd., Fort Frances, for harvesting what remains in the fire-swept territory. The companies named will do the work, and will pay the government $2.25 stumpage dues per thousand feet. Between 2,500 and 3,000 men will receive employment in the project. The work must be completed before the spring to prevent worms killing the trees and making them useless.

Howard Smith Chemicals Gets Charter

Howard Smith Chemicals, Limited, with head office at Cornwall, Ont., has been granted a federal charter with power to deal in chemicals, chemical products and chemical derivatives. The authorized capital consists of $200,000 of six per cent, cumulative, redeemable preference shares of the par value of $100 each and 30,000 common shares of no par value common stock with a limited value of $5 each. Howard Smith Chemicals, Limited, will be a wholly controlled subsidiary of the Howard Smith Paper Mills Limited, Montreal.

Port Royal Mill to Expand

It is reported that the Port Royal Pulp and Paper Company, Ltd., St. John, N. B., is considering construction of an addition to its plant, which will materially increase the output of sulphite pulp and give employment to 50 or more additional men. The plant extension, it is understood, is dependent on an enlarged water supply being made available. This can be obtained through improvements to the dam at Menzies Lake, at a probable cost of $10,000. A. J. Lacroix, manager of the Port Royal Pulp and Paper Company stated that he was not yet ready to reveal the details of the plan.

Plans for Great Lakes Paper Co.

The final step toward normal operation of the Great Lakes Paper Company, Port Arthur, Ont., since the removal of the company from the trusteeship after a reorganization plan was decided upon will likely be taken by the board of directors at once. It is understood that R. O. Sweezey, of Montreal, will be entrusted with the management of the company and will be elected to the board, possibly becoming a vice-president under C. H. Carlisle, president.

General News of the Industry

The Canadian National Exhibition, Toronto, closed on September 12 with an attendance of nearly two million visitors. Among the exhibitors who occupied booths were the Interlake Tissue Mills Company, Toronto, E. H. Wilkinson & Co., showing Marvellum box coverings, and the Regal Stationery Company, Toronto.

Christopher Emes was recently sentenced to five years imprisonment at Parry Sound, Ont., on the charge of wilfully setting fire to timber and pulpwood limits. Three charges were laid against him.

S. F. Duncan, president of Provincial Paper, Limited, Toronto, has returned after spending an enjoyable holiday at the Seigneury Club in Quebec.

Champion Paper Corp. Builds Dam

[FROM OUR REGULAR CORRESPONDENT]

CARTHAGE, N. Y., September 14, 1936—Operations have been curtailed at the Champion Paper Mill while construction of the new dam is progressing and new drives installed in several paper making machines. Many of the employees are at work on the repair job and some have been laid off until the task is completed. The dam is to be 500 feet long and replaces the old one which was demolished prior to starting of construction. It is expected that construction will be completed in about two weeks. Meanwhile the mill is closed temporarily awaiting the water supply to be afforded by the new dam.

A wrecking company from Rochester has started dismantling the digesters and sulphite plant adjoining the mill of the Carthage Papermakers Inc. The sulphite plant was destroyed by fire several years ago when it was the property of the Carthage Sulphite, Pulp and Paper Company. The sulphite producing portion of the mill was never placed in use after the fire because of the availability of foreign products which could be purchased more economically. The machinery has been idle for many years.

Finland May Control Pulpwood Exports

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 16, 1936—Large exports of spruce pulpwood from Finland, together with a rapidly-increasing consumption of this important raw material have given rise to strong recommendations for the control of pulpwood exports, according to a report to the Department of Commerce.

It has been pointed out that during the last few years the cutting of spruce has considerably exceeded the annual growth. It appears, however, that the domestic consumption of pulpwood has not yet reached its peak and supplies of raw material are still abundant judging from the fact that two new mills, one to produce 40,000 tons of sulphite and the other 80,000 tons of sulphate pulp annually are to be constructed in the near future.

Chicago Paper Industry Conditions Improve

Demand for Book Paper Better, Although Other Grades of Fine Paper Remain Practically Unchanged — Coarse Papers Continue to Display Strength—Request for Newsprint Stimulated by Talk of Higher Prices

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., September 14, 1936—Reports from various factors within the local paper industry continue to reflect the satisfactory improvement in general business. The marked upturn in retail trade has had a salutory effect on kraft papers which continue to dominate the local field as far as production and demand are concerned. Sulphite bonds have shown a basic improvement in the past month and local outlets are reported as pleased over the near outlook. Newsprint factors find that the talk of $50 newsprint has effected some stimulus locally and the market in general is showing real betterment. Groundwoods have strengthened and consolidated gains made during the summer and the expected drops in demand have not been as marked as many had believed. Paperboard prices were firm. The fine paper market in general showed little change over last week, with book papers said to have registered the most improvement. Covers were little changed. Bonds and ledgers of the better grades were reported moving into a more active range in reflecting a general sentiment toward quality merchandise as the most economical method of handling business.

Local observers of the waste paper market are reporting it firm at this time but are expecting a slowing up in demand immediately after fairly good business based on holiday trade taken care of. The present month shows the supply of waste paper in the Chicago area just about reaching the demands of the mills and thus making for a comparatively firm though somewhat dull market. However, the supply is expected to be increased materially as soon as the schools of the area open and contribute a tremendous tonnage of waste paper to the existing supply. This increase will be offset, say local dealers, by demand based on Christmas business. The purchases made by the mills for replenishing inventories is expected to signify the major development during the winter season and the best demand following the fulfilling of holiday requirements.

Association Activities

With a native of a neighboring State, Congressman Hubert Utterback, of Iowa, recently announced as one of the "opening guns" speakers at the fall meeting of the National Paper Trade Association, local paper executives who are in contact with their acquaintances in all parts of the country, are expecting an unprecedented interest in the sessions which will be reflected in a record attendance. Mr. Utterback is to discuss the Robinson-Patman Bill and his activity on this legislation when it went through the Federal Congress is certain to enhance the interest in his remarks. His appearance is scheduled for Tuesday morning, September 22.

The Midwest Division of the Salesmen's Association of the Paper Industry is hoping that everybody will note the advancement of the big annual golf outing at Olympia Fields to September 24 rather than September 25, to conform to the closing dates of the NPTA meetings. The Salesmen held no meeting on September 7, Labor Day, but will convene at the Hotel Sherman on September 14 to iron out all problems arising from what promises to be one of the biggest golf outings in paper history.

News of the Industry

Considerable interest is being evidenced by local paper executives in reports that an upward revision of freight rates are being discussed by representatives of both rail and truck transportation units. The truck companies are known to have stated that they need more than 2 cents per ton mile revenue to show a profit, while the railroads have been handling freight at around 1 per cent per ton mile with a corresponding drop in revenue. Reports current in Chicago state that a committee from the railroads has been appointed to discuss the situation with trucking interests with the possibility of leading to an increase in trucking rates to divert long haul traffic to the railroads which are purported to be best equipped to handle such traffic. Whether or not these deliberations will ultimately lead to an addition to the costs of doing business of the paper industry remains to be seen.

E. J. Cady & Co., Chicago manufacturers of micrometers and scales, are reported to have appointed Walker, Goulard, Plehn Company, of New York City, as their eastern agents.

The Albermarle Paper Company's Chicago office is getting some appreciated compliments about its new publication "Selling Blotters," which shows the effectiveness and artistry that can be put into blotters as productive advertising mediums. The experiences of about fifty years standing seem to have been instilled into this novel production of what a blotter can do if given a chance.

Paper Demand Active In Boston

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 14, 1936—Demand for paper in the wholesale market here was fair to very good last week, some concerns making highly optimistic statements. At the office of a house handling both fine and wrapping paper, it was noted that there had been a decided pickup since September 1 and that an active business was anticipated this fall. Orders came in wonderfully well, it was intimated. There are rumors that sulphite bond or at least one grade of this paper will be advanced in price. Box board was in fair demand, with material for shoe cartons rather active.

In paper stock, old papers moved at steady prices, with an active demand for No. 1 kraft, mixed papers, old newspapers and corrugated boxes. No. 1 kraft advanced to 1.15 from a range of 1.05 @ 1.12½, f.o.b. Boston. Corrugated boxes were quoted by some at .47½ @ .50, f.o.b. Boston but were named as high as .55 f.o.b. Boston in other quarters. Bagging was in good demand, moving at firm prices in some quarters, although with some others it was reported rather slow. It is intimated that foreign manila rope brought 2.60 f.o.b. Boston, and that this commodity sold as high as 2.65 f.o.b. Boston. There was an active demand for soft jute strings. New domestic rags moved fairly well at strong prices. Old domestic rags continued unchanged in value. Not many transactions were reported in foreign rags, although dark cottons held very firm abroad and in this country. The improvement in raw cotton has given a better action to cotton twine, with stiff prices.

A Handling System That's Almost Human

F. C. Harris[1]

For their initial objective in a campaign to simplify the handling of materials, the management of the Firestone Tire & Rubber Company determined to reduce the cost of transferring finished rolls of tire fabric from the cloth room of its Gastonia mill to an adjoining warehouse.

These rolls of fabric weigh from 650 lbs. to 1000 lbs. and measure 60 inches maximum length and from 20 to 30 inches in diameter. From 100 to 150 rolls are woven in an 8-hour day and when weighed and graded in the cloth room, must be transferred to the warehouse to be held until released by the laboratory where tests are made with samples from each roll.

To meet the complex requirements of such an automatic carrying and distributing system, The American MonoRail Company made adaptations of their present monorail carrying equipment and designed additional controls and devices to meet the demands.

The equipment consisted of two special double-decked devices for automatically loading rolls onto the carrier, a cradle type roll carrier with electric hoist and standard MonoTractor drive unit, a special control panel together with limit switches and other controls and the regular MonoRail electrified track equipment with supports.

Automatic Loading Device

From the looms the rolls of fabric are placed on tables running the length of the room and are moved along to a scale where they are weighed, wrapped and rolled along to the loading tables which are inclined sufficiently to permit partial gravity feed into toggle and lever automatic loaders. When the carrier lowers its cradle and registers against a bar, it trips the levers and releases a single roll into the cradle and at the same time prevents the next roll from going forward. Then the carrier cradle raises its load and the toggle goes back to its original position to receive the next roll in line. Provision is made for the same action over both upper and lower tiers of rolls, but at the present time only the lower is operated.

Dispatcher Panel

The dispatcher panel is the center of control for the entire carrying system. It is arranged with a series of 40 horizontal bars, each having two sliding square bakelite selectors; one on the right moving only one place to the left or right indicated "A" and "B". The other selector moves eigth places, with an additional position marked "S" for stop. Seven places for delivery to warehouse stations and one marked "P" for a truck loading platform. The right hand selector controls pick-up from either loading table "A" or "B".

Normal use of the dispatch panel is as follows. Before starting the system, the operator raises the horizontal indexer shown in back of the horizontal bars to the top of the panel with the crank on the top of the right side of the panel. He then starts with either table, setting the right hand selectors to pick-up from that table, and the left hand selectors for the proper unloading point, continuing for the number of rolls to be carried. After he has set-up the required number of trips for that table he continues down the panel for the other table, putting the right hand table selector in the other position. As many as 40 rolls can be dispatched and selectivity distributed from one setting of the controls.

After setting the panel for as many trips as required, the operator then starts the system by turning the switch on the left side of the panel to the "Start" position. Carrier then goes through each cycle of operation indicated on the panel, picking a roll from the selected table and depositing it in the warehouse at the selected station, returning again for another and continuing as far as controls are set up.

A "Stop" position is included on each horizontal bar in the panel so that the operator can set up a desired number of trips and then have the carrier stop as it finishes these trips and at the same time light a signal on top of the panel to indicate that it is ready for resetting.

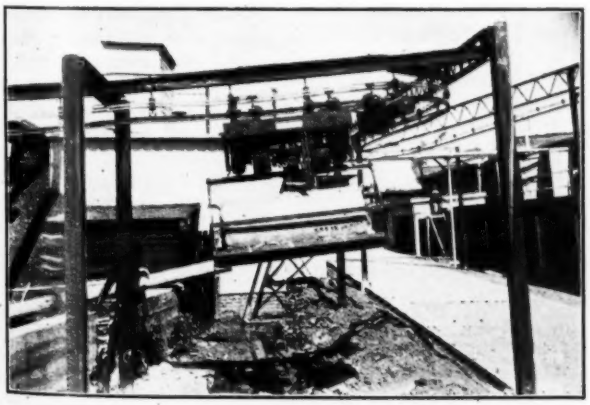
Automatic Carrier Unit

This consists of a cradle-type carrier built to contain various size rolls and to unload by gravity upon striking a tipping bar. It is attached to a twin drum hoist equipped with a specially designed spring roller guides to keep cables in the drum groves when slack.

For automatic operation, special switching and reversing controls operate the hoist and start the MonoTractor drive on its trips.

The travel is accomplished by the use of the MonoTractor, a recent development by the American MonoRail Company. The MonoTractor consists essentially of a gear motor unit with a special rubber tire mounted on the output shaft, all being supported by a simple frame and trolleys. The rubber drive wheel is inflated against the bottom of the rail and with the 1½ hp. motor, effective and simple traction is obtained to climb the 9 per cent grade in this MonoRail system. Further, it makes accurate stopping and registry within plus or minus 1½ inches at loading and unloading stations easy to maintain.

[1] Chief Engineer, The American MonoRail Co., Cleveland, Ohio.



CARRIER CLIMBING A 9 PER CENT GRADE OVER THE MONORAIL SYSTEM FROM MILL TO WAREHOUSE.

F. L. Shonkwiler Goes to Montreal

DAYTON, Ohio, September 11, 1936.—To handle more effectively its Fulton drier drainage system business among the Canadian mills, the Midwest Fulton Machine Company has transferred F. L. Shonkwiler to Montreal where he will work directly with the company's agents, Peacock Brothers Limited. Mr. Shonkwiler's successor in the Dayton office is C. H. Butterfield. Mr. Butterfield is an experienced steam engineer who is widely known among the paper mills.

Obituary

Allen Curtis

Allen Curtis, for many years vice-president in charge of manufacturing for the International Paper Company, died September 8 at his summer estate at Sand Lake, N. Y. He was 59 years of age.

Mr. Curtis, born in New York State, was graduated in 1900 from Cornell University as a mechanical engineer. He entered that year the employ of the International Paper Company, which his father, Warren Curtis, had helped to found in 1898.

Mr. Curtis became first vice president of the International and his connection with the company continued until 1932, when he retired as a director. He was at his death vice-president and a director of James & Kirtland, steel dressers, having joined the company when it acquired the Faultless Iron Works at St. Charles, Ill., which his father had founded.

In the World War Mr. Curtis served in the aircraft production branch of the air service with the rank of captain.

He lived for many years in New York, but recently had made his home in Northville, N. Y. He was a member of the Engineers Club and of the Siwanoy Golf Club.

His widow, Mrs. Maude Bacon Curtis, and two sisters, Mrs. C. H. Yates and Mrs. Marguerite Bensal, both of White Plains, N. Y., survive.

William A. Merrill

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 14, 1936—William A. Merrill, former sales manager and member of the board of directors of Hollingsworth & Whitney, died at his residence in Greenfield, N. H., in his 62nd year, Friday, after a brief illness.

Mr. Merrill was born in Salem, Mass., November 12, 1874. After attending schools there he joined the firm of Hollingsworth & Whitney. He served two terms on the Salem City council just before the turn of the century. Later he removed to Swampscott, living there until his retirement in 1930, when he went to Greenfield.

He was a member of the Essex Lodge, A. F. & A. M., the Engineers Club of Boston, the Corinthian Yacht Club and the Tedesco Club of Swampscott.

He is survived by his wife, Mrs. Bertha Crocker Merrill; two sisters, Miss Gertrude Merrill, of Hartford, Conn., and Mrs. J. Ernest Chalmers of Suburn, Me.; a daughter, Miss Ruth P. Merrill, and a son, Richard C. Merrill, both of Marblehead.

George E. Challes

George E. Challes passed away at his home 9 Grenadier Gardens, Toronto, on September 8 in his eightieth year. He had been in failing health for the last two years and suffered a broken leg a few weeks ago which hastened the end. Mr. Challes was widely known in paper circles both in the United States and Canada, being on the road for nearly half a century. Born in Napanee, Ont., his first position was with the old Napanee Paper Mill, after which he joined the Riordan Pulp and Paper Company which was later purchased by the International Paper Company. Mr. Challes was a director of the Abitibi Power and Paper Company and of Provincial Paper. When selling pulp for the Riordan Company he made frequent extended trips to nearly all parts of America and was a familiar figure at every trade convention. He was prominent in Masonic circles and enjoy the esteem of a large circle of friends in the financial and industrial arenas. Surviving are his wife, one daughter and two sons, W. P. Challes, of Toronto, and J. A. Challes, of St. Catherines, Ont.

Richard J. McLean

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 14, 1936—Richard J. McLean, a former paper salesman for John Carter & Co., Inc., and Storrs & Bement Company, died Thursday at Plymouth, N. H. In recent years Mr. McLean was proprietor of the *Plymouth* (N. H.) *Record,* at one time president of the New Hampshire Weekly Publishers Association and was a Republican member of the New Hampshire Legislature. While with the paper trade, with which he had not been connected for more than ten years, he covered Maine, New Hampshire and Vermont for Storrs & Bement Company for several years and was later engaged in the office of John Carter & Co., Inc.

Roger Morgan

HARTFORD, Conn., September 14, 1936—Roger Morgan, aged sixty-nine, son of the founder of the Morgan Envelope Company, now part of the United States Envelope Company and a colonel on the staff of former Governor Roger Wolcott of Massachusetts, died in St. Francis Hospital here last week.

Mr. Morgan, a native of Springfield, who had lived in Hartford for the last five years, was born February 18, 1867, and attended Phillips Exeter Academy and the Massachusetts Institute of Technology. A few years after graduation he joined his father in the envelope business and later organized a company of his own in Watertown.

While in Springfield, he organized and became the first captain of Company K, Massachusetts State Militia.

Walter M. Ross

Walter M. Ross, secretary of J. R. Booth, Limited, Ottawa, pulp, paper and lumber manufacturer, passed away suddenly from pneumonia in Liverpool, Eng., on September 5 where, along with Mrs. Ross, he was enjoying a holiday. For nearly fifty years he was associated with forest products business in Canada and was a former president of the Canadian Lumbermen's Association. Mr. Ross was 65 years of age and was born in Ottawa and for nearly forty years was with the Booth organization rising to be a senior executive in the firm. He is survived by his wife, two sons and one daughter. The body is being brought home to Ottawa for interment.

James Brown

Proprietor for many years of the J. L. Morrison Company, of Toronto, dealers in paper mill machinery, James Brown died at his home, 76 Clarendon avenue, Toronto, on September 8 at the age of 64 years. Mr. Brown was at one time president of the Kidder Press, Inc. of Dover, N. H., of the Brilliant Sign Letter Company of New York and of Park Lawn Cemetery, Limited, Toronto. He was born in Scotland and came to Canada in 1889. In business at 445-447 King street West, Toronto, he was a prominent member of several leading clubs.

Government Paper Bids

WASHINGTON, D. C., September 16, 1936—The Government Printing Office has received the following bids for 1,466 pounds (5,200 sheets) of white sulphite index paper: R. P. Andrews Paper Company, at 6.93 cents per pound; Whitaker Paper Company, 6.06 cents; Stanford Paper Company, 7.3 cents, and W. D. Hess Paper Company, 7 cents.

STONITE*

A perfect **SURFACE** *for*

PRESS ROLL SERVICE

STONITE is a special, patented compound of rubber and quartz. It has unique qualities that make it an ideal covering for top press and soothing press rolls. Applied to metal roll bodies and ground by precision methods to a smooth, hard, granite-like surface, it helps stop pickup and breaks. If heavy rolls have been wearing the felt or crushing the sheet, STONITE applied to light-weight roll bodies will stop it. Write for the complete story.

* (Ebonite and Granulated Stone Composite U. S. Patent 1,787,890 Re 18,111)

STOWE-WOODWARD, INC.

NEWTON UPPER FALLS • MASSACHUSETTS

NEW YORK OFFICE WOOLWORTH BUILDING

WHITE STAR Rubber Covered Rolls
STONITE Top Press and Smoothing Press Rolls
TANNITE Couch Rolls
All made by the COREWELD Process

Kalamazoo Valley Tappi Discusses Titanium

The Kalamazoo Valley Section of the Technical Association of the Pulp and Paper Industry held its first dinner-meeting of the year at the Park American Hotel, Kalamazoo, September 10, 1936.

W. R. Willets, of the Paper Development Laboratory, Titanium Pigment Company, Brooklyn, N. Y., was the speaker. Mr. Willets entitled his talk: "Titanium Pigments—A Review." His talk covered the early history of titanium, giving 1918 as the year for the beginning of titanium pigments, 1928 as the year of its introduction in the paper industry in Germany, and 1931 as the year of its use in the paper industry in this country.

At first there was just one titanium pigment—now there are many grades. His talk covered uses of titanium—its method of manufacture—its greatest characteristics and properties—its manners of application as beater filler and surface application on fourdrinier tub press, and calender stacks. A lengthy discussion followed his talk.

Among those present were the following:

Harold Dewey and Arthur Weinland, Lee Paper Company; E. G. Milham, Watervliet Paper Company; E. F. Wittington and H. C. Bradford, Rex Paper Company; V. R. Croswell, R. F. Irwin, Paul Easton, M. Loveland, F. L. Chappell, Jr., H. O. Ware and W. J. Higbee, Paper Makers Chemical Corporation; V. C. Mathis and M. R. Wilkins, Bryant Paper Company; P. W. Bartholomew, Paper Makers Chemical Corporation; H. E. Stafford, and C. C. Schneider, Hawthorne Paper Company; A. B. Milham, Bryant Paper Company; W. F. Hathaway, J. E. Bauman, L. La Liberte, Al. Perlick, F. Libby and W. J. White, Kalamazoo Vegetable Parchment Company.

A. E. Hays, C. A. Braginton, R. L. Barton, G. C. Schmid and P. de Guehery, Michigan Paper Company, W. R. Steele, The Solvay Process Company, Syracuse; C. J. McMahen, Appleton Woolen Mills, A. Sherwood, Sutherland Paper Co., O. T. Birkeness, Wallace & Tierman, Chicago; H. M. Annis and W. A. Kirkpatrick, Allied Paper Mills; W. S. Taylor and V. Heinmuller, American Cyanamid & Chemical Corporation; C. F. Simmerer and W. R. Willets, Titanium Pigment Company.

Boston Paper Industry News

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., September 14, 1936—A welcome was given to the new secretary of the New England Paper Merchants Association, John Coolidge Hurd, at the first fall meeting of the organization at the Hotel Touraine Wednesday evening. A toast was given to Frank B. Cummings, "our retiring, tireless secretary." About 35 were present, with President Robert M. Stone in the chair.

The Harvard Paper Exhibit, recently shown for a month at the Widener Library, Harvard College, in connection with the Tercentenary Celebration, was on display for inspection and study. William Bond Wheelwright, well known to many paper men, editor of *Paper and Printing Digest,* who arranged the collection, as well as the "House of Paper" at the Chicago Fair, described the exhibit.

At the top of the menus, printed on a single piece of paper board, 6x9 inches, with an illustration of machinery manufacturing paper, from the pulp to the finished product. Cleverly incorporated with the names of the dishes served in the menus were terms used in the paper trade. At the bottom of the menu was noted the fact of the "70th Anniversary of the Invention of Sulphite Pulp, 1866-1936."

The Strathmore Paper Company, West Springfield, Mass., conducted meetings the latter part of last week, with Cy Norton, sales promotion manager, and E. M. Hughes, sales representative, in charge, at the offices of the individual Strathmore merchants, Carter, Rice & Co., Corp., Arnold-Roberts Company, Cook-Vivian Company and Storrs & Bement Company. They showed the advertising set-up for 1936 and 1937, made important announcements regarding changes in lines and showed a short projection of the important processes of manufacturing Strathmore papers.

Dismantle Pyrites Paper Mill

[FROM OUR REGULAR CORRESPONDENT]

PYRITES, N. Y., September 14, 1936—Dismantling of the plant here owned by the International Paper Company is now under way. It was originally operated by the De Grasse Paper Company and later by the *New York World.* The motors in good condition are being shipped to the Corinth branch of the company and two paper machines have been sold. Plans are under way for disposing of the other machines. All other parts have been sold as junk and are being taken by truck to Buffalo. The railroad track from the mill to the Canton line of the New York Central, a distance of eight miles, has been demolished. In its prime the mill here employed several hundred persons and the company paid the New York Central about $100,000 a year for transporting logs from Ogdensburg to the plant. The pulp wood terminal, however, was abandoned several years ago. It is reported also that the company is dismantling several other of its smaller mills in Maine and elsewhere which have been closed for a number of years. Holdings of the company here included mill property, 33 dwellings and land, which were assessed at $750,000 at the peak of operations but are now valued at $150,000.

Neal Ahern Is Elected President

[FROM OUR REGULAR CORRESPONDENT]

DAYTON, Ohio, September 14, 1936—Neal Ahern was elected president of the H. A. Seinsheimer Corporation, Cincinnati, last Wednesday, succeeding the late George C. Henry. Mr. Ahern has been associated with the company since 1913 when he started as stock boy. Later he became a salesman on the West Coast and then was promoted to sales manager. In 1924 he was elected Treasurer, and in 1930 Vice-President in charge of internal management. He is a native of Cincinnati and resides at 1107 Seton avenue.

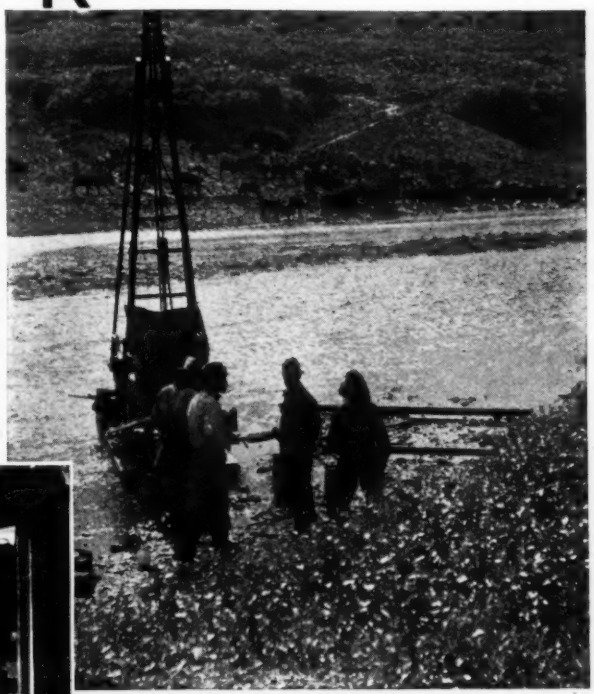
Other officials elected by the board of directors were Robert A. Bowman, vice-president, and R. E. Nelson, to fill the vacancy on the board. The new officers will assume their duties on the threshold of the company's fiftieth anniversary. Early in 1937 it will have been 50 years since the late Henry Seinsheimer founded the business in a small way, in restricted quarters on East Third street. The company is now located in the Pugh building on Pike street.

New Turbine Unit for Penobscot

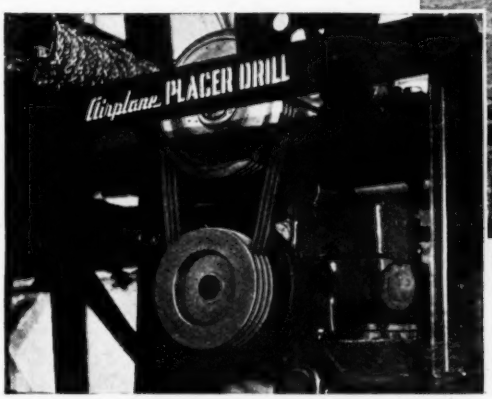
The Penobscot Chemical Fibre Company, of Great Works, Me., manufacturers of bleached sulphite and bleached soda pulp, are installing a new hydraulic turbine unit made by James Leffel & Vo., of Springfield, Ohio. It consists of three pairs of horizontal shaft turbines in tandem, two new generators, one AC and one DC current, and 27-inch S-Type wheels. The new unit will overcome the loss of power resulting from high water in the spring and low water in the late summer and fall. It will make the mill independent of steam power during those periods, and will insure their customers continuity of supply.

GILMER V-BELTS

mine for gold...with Airplane Placer Drills



So accustomed to Airplane Placer Drills in Alaska, the reindeer are unafraid. Here a herd of them, north of Nome, are undisturbed by drilling in a river bed.



The three Gilmer V-Belts shown on this Airplane Placer Drill drive have put in many months of hard work in digging for buried treasure . . . and they're all set to put in many more!

PLACER mining for gold is no child's play. Developing profitable placers means long, laborious treks into the cold wastes of Alaska and Siberia, and the fever-ridden jungles of Central and South America. Men and equipment must be made of sturdy stuff!

That so many outfits choose Airplane Placer Drills for prospecting in inaccessible sections is a tribute to their ruggedness and reliability. On those drills Gilmer V-Belts are standard equipment.

Like hundreds of other firms, C. Kirk Hillman & Co., of Seattle, manufacturers of the Airplane Placer Drill, have found that Gilmer V-Belts prove their dependability.

Gilmer BELTS

Maybe you have a V-drive that's acting like a tenderfoot, that weakens on the tough treks, that isn't up to carrying a *full* share of the load. If so, try Gilmer V-Belts.

L. H. GILMER COMPANY
Tacony, Philadelphia

Manufacturers OF COMPLETE LINE OF POWER BELTING

V-belts · Koble Kord Roll and Endless Flat Belting · Planer Belts · Speedage Endless Fabric Belts · Cone Belts
Roving Frame Belts · Moulded Rubber Belts · Winder Belts · Spinner Belts · Refrigerator and Washing Machine Belts
Conveyor Belts · Round Roll and Endless Fabric Belting · Endless Belting · Endless Cotton Belts · Laundry Feed Ribbons

SPECIALISTS IN QUALITY BELTS SINCE 1903

N.A.W.M.D. Luncheon Club to Open Sept. 22

The New York Metropolitan membership of the National Association of Waste Material Dealers, Inc., will inaugurate the second fall and winter season of its N.A.W.M.D. Luncheon Club on Tuesday, September 22 with a luncheon which will mark a distinct change in the policy of the club during its first season.

During the 1936-1937 season the club and its facilities will be open to all members of the waste material trade operating within the Metropolitan District of New York and out-of-town dealers will also be welcome whenever they find it possible to be in New York on dates on which the luncheons are scheduled.

For the first luncheon the club has been fortunate in securing the very attractive Sun Room in the Hotel Edison located on 47th street just west of Broadway. This large room, which is accessible directly from the hotel lobby and which will accommodate two hundred persons, is to be fitted up by the management to make a very attractive luncheon and exchange room. Ample telephone service will be available for all members attending to keep them in touch with their offices without any inconvenience whatsoever.

It is the feeling of the club that the more it develops into a thoroughly congenial meeting place for all members of the trade, the more certain it is to draw to New York on dates set apart for luncheons a large number of out-of-town dealers, and with this in view, the club will function during the coming fall and winter not only as a luncheon club but as a business exchange and those attending will be encouraged to utilize the room and the facilities from 12: to at least 3: P. M. and every facility will be available which will in any way aid in carrying out the principal purpose of the club which is to afford dealers in all branches of the industry an opportunity to meet, make new contacts and do business.

For the opening luncheon the cost will be $1.50 per person, including refreshments served from 12:30 to 1: in the Club Room as well as the luncheon served from 1 to 2. No tickets will be sold in advance but reservations must be made by those desiring to attend. Reservations should be made by letter, wire or telephone (Telephone Number—Bryant 9-1318), to association headquarters, 1109 Times Building, New York.

A very large attendance for the opening luncheon is already indicated.

Work of the Import Committees

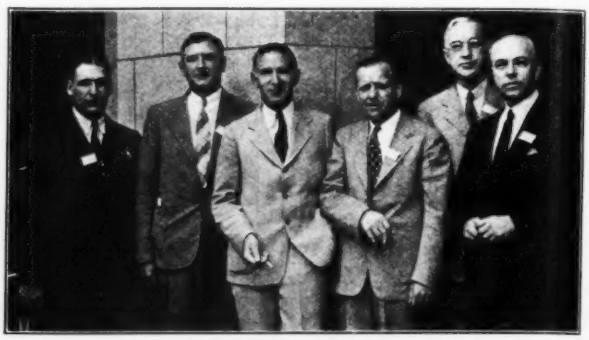
The trial of a series of cases at Los Angeles involving the dutiability of colored paper in sheets resulted in testimony clearly drawing a line between the duitable colored papers and the duty free papers in tints chiefly used by newspapers. The imported paper was in sheets, and sold as poster paper, but claimed by the importer to be duty free as standard newsprint. An effort was made in the trial to so establish a record of the character of paper imported that the final decision will be a plain precedent to be followed at all ports through which such paper is imported. Counsel for the Import Committee assisted the Government Attorneys in the trial of the case.

Eighteen cases docketed for trial at Duluth, involving colored poster papers, as well as white papers of a higher grade than standard newsprint, were abandoned by the importer, this abandonment constituting an admission that such papers are not properly duty free.

Two cases involving mandarin paper docketed for trial at Detroit were abandoned by the importers.

Heads Northwestern Division

DULUTH, Minn., September 14, 1936—At the meeting of the Northwestern Division of the American Pulp and Paper Mill Superintendents Association held here September 11 and 12, Rudolph W. Meyer of the Badger Paper Mills, Peshtigo, Wis., was elected chairman of the division for the ensuing year. The secretary is to be appointed later by Mr. Meyer. The accompanying picture shows the new chairman of the division, F. J. Timmerman of the Northern Paper Mills, Green Bay, Wis., president of



PICTURE TAKEN AT DULUTH MEETING
From left to right: W. M. Peavey, R. W. Meyer, C. R. McNair, Jr., F. J. Timmerman, R. L. Eminger and C. G. Craig.

the American Pulp and Paper Mill Superintendents Association; R. L. Eminger, secretary of the American Pulp and Paper Mill Superintendents Association; C. G. Craig, Cumberland Mills, Me., field secretary of the American Pulp and Paper Mill Superintendents Association, and other association members.

New High For Potdevin Machine Co.

Potdevin Machine Company, of Brooklyn, N. Y., reports a period of intense activity, the sales closely approaching a new record high. They predict that this will be the best year of their 44 years of existence. This activity extends to all classes of their equipment including paper bag machinery, printing presses, and waxing machinery.

Potdevin is especially busy in the field of newly designed models, having started work on the largest sack machine ever built, and two new models of printing presses, one being a 6-color oil-ink web press, the other a 3-color coffee bag press.

John P. Burke Speaks in Canada

[FROM OUR REGULAR CORRESPONDENT]

FORT EDWARD, N. Y., September 12, 1936—John P. Burke, head of the International Brotherhood of Pulp, Sulphite and Paper Mill Workers Union, has left for Canada where he will deliver several speeches. On Labor Day he went to Smooth Rock Falls, Ontario, where he addressed a meeting of the Spruce Falls Paper Company at Kapuskasing in the same province. He is expected to return late this week.

Z. M. Crane Estate Probated

PITTSFIELD, Mass., September 14, 1936—Personal property of $4,998,382 and real estate valued at $127,330 were shown in inventory of the estate of Zenas Marshall Crane, Dalton paper manufacturer who died April 29, filed recently in Berkshire probate court. The inventory showed Crane was the largest single block stockholder in Crane & Co., Inc., having 7,800 shares.

Board of Governors Meets

The Board of Governors of the American Paper and Pulp Association held its semi-annual meeting in the Waldorf-Astoria, New York, last Friday. Ralph Hayward, president of the Kalamazoo Vegetable Parchment Company, was elected a vice-president of the association.

Divisional association reports made were very good so far as the volume of trading is concerned, although the price situation is irregular and requires adjusting.

It was decided to make a general survey of stream pollution conditions and to ascertain whether the paper industry will support recommendations similar to the Vinson Bill.

It was also reported at the meeting that the association was going ahead with wide revisions of the Trade Customs of the industry.

Two French Paper Conventions Signed

WASHINGTON, D. C., September 14, 1936—Two paper conventions were signed recently; one between the Syndicate of French Paper Producers, the Producers of newsprint paper, the Federation of the Press and the Union of Pulp Producers, according to a report from Assistant Trade Commissioner Earle C. Taylor, Paris. This convention established a new basis for the subsidies which would no longer be paid to the newsprint producers and passed on by them to the consumers in the form of lower prices or rebates, but directly to the newspapers and publishers.

The subsidies will no longer be a charge on the budget but will be derived directly from a tax on a stabilized import tonnage and from an allocation for this purpose of a portion of the customs duties on pulp used in the manufacture of paper for newspapers. This agreement, which will be submitted to Parliament for ratification, is closely tied up with the convention covering mechanical pulp and chemical pulp, which was drawn up after ten months' negotiation amongst the interested parties.

Bristol's Round Chart Recording Voltmeters

The Bristol Company, Waterbury, Conn., announces the publication of Bulletin No. 436, covering a new line of round chart recording voltmeters and ammeters for electric utilities and industrial plants. Models for wall, switchboard, flush panel, and pole mounting, as well as for portable use are illustrated with drilling dimensions. A detailed description is given of the new inverted type replaceable movement and of the novel design of the pen arm. Copies of the bulletin are available from The Bristol Company, Waterbury, Conn.

Geigy Company Expands at Charlotte, N. C.

The Geigy Company, Inc., New York, N. Y., manufacturer and distributor of dyestuffs, chemicals and colors, etc., for the paper trade and other industries, has leased the Thies-Crowell Building, West 11th street, Charlotte, N. C., formerly occupied by the Chevrolet Motor Company, and will remodel and improve for local factory branch. Company is now located at 1134 Elizabeth avenue, Charlotte, and will remove to new location as soon as building is ready, where large increase in present facilities will be provided. Bernard F. Smith and Fred E. Sprock are managers at the Charlotte branch.

Kieckhefer May Build in North Carolina

It is reported that the Kieckhefer Container Company contemplates the erection of a board mill of 500 tons daily capacity, to be built at Washington, N. C. It has not been possible, however, as yet to confirm this report.

Paper Demand Steady In Quaker City

PHILADELPHIA, Pa., September 14, 1936—The volume of business in this area was very well sustained this past week and reports that a contraseasonal year is in the offing, is heard on all sides.

The Board of Governors of the Paper Trade Association of Philadelphia held a special meeting today at the Down Town Club, preceded by a luncheon. Ormond S. Freile, Acting president in the absence of Norbert A. Considine, who is in Europe, presided. Mr. Freile, who had been appointed delegate to the meeting of the National association, to be held at Hotel Drake in Chicago, September 21, 22 and 23, finds it will not be possible for him to attend, and in his place William S. Wilcox, representing the Fine Paper Division, will attend. It was also decided at this meeting to extend to the Philadelphia Paper and Cordage Association the privilege of having its board and committee meetings in the headquarters of the Paper Trade Association in the Drexel Building. The Philadelphia Paper and Cordage Association, however, will hold its regular monthly meeting the third Friday of each month in the Hotel Adelphia, as heretofore.

Invitations have been sent out to all the members of the Philadelphia Paper and Cordage Association to attend the first meeting of the fall season to be held on September 18 at the Adelphia Hotel at 12:30 o'clock. President George K. Hooper and the officers on the various committees have been meeting quite frequently during the summer, and the meeting on Friday next will be devoted to a round-table discussion of the plans for the ensuing year and reports of their activities during the summer. At this meeting there will be distributed a handsome engraved certificate of membership to each member in good standing. This certificate is a work of art and it is ardently hoped that each member will have it framed and hung in his reception room. The members are urged to attend the meeting early and renew old acquaintances with fellow members. The official membership now totals 99 and President Hooper states that the goal of 100 members which had been set, will be reached at this first fall meeting.

A very unique insignia in the shape of a seal has been adopted by the association and it is suggested that the members use it on their business stationery.

Specifications Committee To Meet

WASHINGTON, D. C., September 16, 1936—The first meeting of the Paper Specifications Committee of the Joint Congressional Committee on Printing will be held about October 1, according to Ansel Wold, clerk of the committee. The specifications will be recommended for a six months period beginning January 1. The committee will have to take into consideration at this time what is to be done under the Walsh-Healy Government Contract Law.

Regional Farm Chemurgic Conferences

Three Regional Chemurgic Conferences, covering a wide field of agricultural-industrial crops in the South and Northwest, have been announced as a part of the Farm Chemurgic Council's fall program. The first of this series of sectional meetings will be held at Lafayette, La., October 15, 16 and 17. It will be known as the Southern Chemurgic Conference. The second meeting will be held during the following week, October 20 and 21, at Pensacola, Fla., as the Gulf Coast Chemurgic Conference. A third conference will be held at Spokane, Wash., November 12 and 13, under the direction of the State Planning Councils of four northwestern states.

CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Combined Locks, Wis.—The Combined Locks Paper Company, Appleton, Wis., manufacturer of book and catalog papers, newsprint, etc., has approved plans for alterations and improvements in digester building at mill at Combined Locks, and will proceed with work at once. General contract has been let to the Fluor Brothers Construction Company, 48 Otter street, Oshkosh, Wis. Estimate of cost has not been announced.

Rochester, N. Y.—The Haloid Company, 6 Haloid street, manufacturer of photographic and other processed papers, has awarded general contract to the Gorsline & Swan Construction Company, 96 Pearl street, city, for proposed new addition to mill, recently referred to in these columns, and will begin superstructure at once. It will be two-story and basement, estimated to cost close to $50,000, including equipment. S. Firestone, 59 South avenue, Rochester, is architect and engineer.

Tacoma, Wash.—The Shaffer Pulp Company, Inc., has been organized under state laws with capital of $300,000, to take over and operate the company of same name, with local sulphite pulp mill at Taylor way and the Hylebos Waterway. New company is said to be planning increased operations. It is headed by A. W. Berggren, heretofore vice-president and general manager of former company, and other interests identified with that organization.

Seattle, Wash.—The Independent Paper Stock Company, 650 Seventh street, San Francisco, Cal., has awarded general contract to Lindgren & Swinerton, Inc., 225 Bush street, San Francisco, for new two-story branch storage and distributing plant at 66 Hanford street, Seattle, previously referred to in these columns, and for which superstructure will begin at once. It will be 120 x 130 feet, mill-type construction, estimated to cost about $55,000, including equipment. Ralph A. Beebee and Leland S. Rosener, 233 Sansome street, San Francisco, are engineers.

Haverhill, Mass.—The Melvin Box Company, Inc., recently formed with capital of 200 shares of stock, no par value, plans operation of local plant for manufacture of paper boxes and containers of various kinds. Melvin M. Starensier, 103 Webster street, Haverhill, is president and treasurer of new company.

Cleveland, Ohio—The Industrial Rayon Corporation, West 98th street and Walford avenue, manufacturer of cellulose rayon products, has preliminary plans under consideration for large new mill on site to be selected in the South, exact location soon to be determined. Plant will consist of group of large one and multi-story units, with power house, water pumping station, machine shop and other mechanical departments, and will require a number of months for completion. It will be equipped for an initial capacity of close to 1,000,000 pounds per month and is estimated to cost about $7,000,000, including machinery. Hiram Rivitz is president. Mr. Rivitz and associates have organized a new company under name of Rayon Machinery Corporation, capitalized at $1,000,000, to manufacture special process machinery for cellulose rayon mills and kindred industrial plants. George P. Torrance, formerly president of Link-Belt Company, Chicago, Ill., will be vice-president and general manager of new company, of which Mr. Rivitz will be president.

Tuscaloosa, Ala.—The Gulf States Paper Corporation, manufacturer of kraft wrapping papers, etc., is running on high capacity schedule, giving employment to about 750 operatives in different departments of the mill. It is expected to hold to this basis of output for an indefinite period. Company has recently advanced the wages of all hourly employes 5 per cent.

Indianapolis, Ind.—The Paper Products Corporation has been organized with capital of 1,000 shares of stock, no par value, to manufacture and deal in paper products of various kinds, and will take over and succeed to the Paper Products Company, 123 South Missouri street. New company is headed by Charles E. and Wendell W. Phillips.

Rittman, Ohio—The Ohio Box Board Company has resumed production on regular basis at local mill, following a curtailment since early in June, due to labor difficulties. A majority of the employes have now returned to work. The plant is giving employment to about 700 operatives.

Rome, Ga.—The Tubize Chatillon Corporation will soon take bids on general construction contract for proposed new additions to viscose rayon mill at Rome, comprising two main units, three-story, 150 x 200 feet, and one-story, 147 x 340 feet, respectively, with one-story extension, 77 x 100 feet, to mechanical drier house, and enlargement in power house, water filtration plant and other mechanical operating divisions. Equipment will be installed to increase the capacity of the filter plant from 4,000,000 to 8,000,000 gallons per day. The power installation will include a 2,500-kilowatt turbo-generator unit with complete accessories, high-pressure boiler, pumps and auxiliary equipment. Entire project will cost about $2,500,000 and is scheduled for completion in 1937. Award for excavations and building foundations has been let to the Fiske-Carter Construction Company, Greenville, S. C. Robert & Company, Inc., Bona-Allen Building, Atlanta, Ga., is consulting engineer. Main offices of company are at 2 Park avenue, New York, N. Y.

Fort William, Ont.—The Great Lakes Paper Company, Ltd., has plans maturing for new one-story addition to local mill, to be used primarily for storage and distribution. It is proposed to begin superstructure at early date. New structure will cost close to $45,000, with equipment.

Port Alice, B. C.—The British Columbia Pulp and Paper Company, Ltd., has begun improvements in power

FIRST IN THE COUNTRY

SCULPTURED IN METAL BY L. L. BALCOM

TO be the first to penetrate the Canadian wilderness in the face of danger and privation took an iron will and dauntless courage. But Samuel de Champlain, doughtiest of the cavaliers, had those qualities in abundance. His the pioneer spirit that achieves against discouraging odds. Centuries later, similar courage and will were displayed by EBG engineers when they were first to produce Liquid Chlorine in America . . . and the first to adapt it to many new industrial uses — in spite of indifference and scepticism. But theirs the pioneering spirit, too. And so an industry was born which now steadily contributes to the wealth of a nation through better manufacturing processes and to the health of a nation through safer and more effectual water purification.

ELECTRO BLEACHING GAS COMPANY, MAIN OFFICE: 9 EAST 41st STREET, NEW YORK, N. Y. • PLANT: NIAGARA FALLS, N. Y.

EBG Liquid Chlorine

house at local pulp mill, with installation of additional equipment, including air preheaters, fuel conveyors and other apparatus for increased efficiency in operation. Work is estimated to cost over $75,000. Project will be carried out by company forces.

New Companies, Etc.

Schenectady, N. Y.—The Stratton-Emery Paper Corporation has been chartered with capital of $10,000, to deal in paper products of various kinds. William H. O'Neil, 12 Pine street, Albany, N. Y., is one of the principal incorporators and company representatives.

Wilmington, Del.—The Duoply Container Corporation, care of United States Corporation Company, 19 Dover Green, Dover, Del., has been organized under Delaware laws with capital of $25,000, to manufacture and deal in paper boxes and containers of different kinds. Incorporators include Edward S. Williams and Charles N. Caldwell, Jr., New York.

Buffalo, N. Y.—The Swan Paper Company, Inc., has been incorporated with capital of $10,000, to deal in paper products of various kinds. The incorporators include L. L. Weaver, Joseph Loosen and Francis E. Kerwin, Liberty Bank Building, Buffalo. Last noted is company representative.

New York, N. Y.—The Ohio Paper Corporation has been incorporated with capital of 100 shares of stock, no par value, to deal in paper products of various kinds. Company is represented by the Albany Service Company, 315 Broadway, New York.

Johns-Manville Industrial Products

The 1936 edition of the Johns-Manville Industrial Products Catalog is now available. This 60-page book, profusely illustrated, contains a wealth of information and recommendations on high and low temperature insulations for every industrial need, specifications on J-M Bonded Asbestos Built-up Roofs, and J-M Insulated Roofs; detailed information on J-M Corrugated Transite for roofings and sidings; on industrial friction materials; on Transite Conduit, Asbestos Ebony and other J-M electrical materials; on Transite Pressure Pipe for industrial and municipal water lines; and on J-M packings.

Among new products described in detail are Transite Korduct, a thin-walled form of asbestos-cement electrical conduit; Rock Cork Pipe Covering, a mineral insulation for low temperature piping, and J-M Ohmstone, a non-impregnated asbestos-cement sheet for switchboard panels that will stand shock and vibration and is immune to carbonization.

The catalog also describes in detail Steeltex Floor Lath and Welded Wire Re-inforcement, and sound control of mechanical equipment.

Finnish Pulp Sales Increase

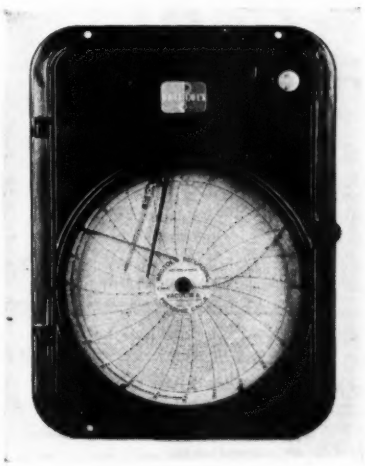
[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., September 16, 1936—Finnish mills were reported to have disposed of practically their entire output of both sulphite and sulphate pulp by the end of June according to a report to the Department of Commerce. Small quantities still available were being sold at rising prices. There are signs, says the report, of growing interest for shipments of 1938. Buyers, however, are reported to be somewhat cautious about placing contracts so far in advance.

During the first six months of the current year, 342,400 tons of sulphite and 153,800 tons of sulphate were exported as against 281,600 tons of sulphite and 101,200 tons of sulphate for the corresponding period of last year.

New Low-Range Pressure Recorders

The Bristol Company, Waterbury, Conn., announces a new series of low-range recording gauges and controllers, known as the Model D4OM series. These instruments are equipped with enclosed bell-type measuring elements and are offered for draft or pressure in minimum ranges of 0 to 0.2 inches of water and maximum ranges of 0 to 2.0 inches of water. Because of the large operating area of the liquid-sealed bell, the measuring element is exceedingly accurate and has the power to respond instantaneously to scarcely perceptible pressure changes.



The control instruments operate on the basic Free Vane principle of pneumatic control which Bristol has used extensively in pressure, vacuum, temperature, humidity, and flow controllers for years. They are equipped with the Ampliset sensitivity adjustment for synchronizing throttling range with process lag.

Instruments of this series are compact and self-contained in a 12-inch case. The whole instrument can be easily carried under the arm. Low-Range Model D4OM Recorders and Controllers are offered for wall and flush panel mounting. A catalog covering these instruments is available upon request.

Accelerated Weathering Test for Asphalts

As a part of its study of the weathering quality of asphalt roofing materials, the National Bureau of Standards has developed an accelerated weathering test for them. In a paper published several years ago, Research Paper 197, it was shown that asphalts behave similarly when exposed to accelerated and to outdoor weathering, permitting the weathering quality to be determined within a few days instead of waiting for several years to find the effect of natural weathering.

The accelerated weathering was accomplished by exposing the material alternately to light and heat from a carbon-arc lamp, a period of refrigeration, and a period during which water was forcibly sprayed on the surfaces that had been exposed to the light. Further study, reported in a paper recently published, Research Paper 886, showed that the products formed by the weathering of asphalts are soluble in water and that tests of the amount and kind of material extracted are useful research tools for following the rate and nature of weathering. For such purposes, a modified accelerated weathering procedure is used in which immersion in water is substituted for the water spray, and the refrigeration period is omitted. It is stated that this procedure may be of value for similar study of other materials, such as coal, rubber, cotton, starch, wood, or wool.

Research Paper 197 is out of print but can be consulted in libraries. Research Paper 886 can be purchased from the Superintendent of Documents, price 5 cents.

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Thomas J. Burke, C. A.
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FUTURE MEETINGS

NATIONAL PAPER TRADE ASSOCIATION, Annual Fall Meeting, Drake Hotel, Chicago, Ill., September 21-23, 1936.

NEW ENGLAND SECTION, Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION, Technical Association of the Pulp and Paper Industry—Fourth Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION, Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway, Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park-American Hotel, Kalamazoo, Mich.

FOREIGN PAPER TRADE

Exports of paper and paper products from the United States during July were valued at $2,009,939, an increase of 11 per cent over July 1935, according to the Forest Products Division of the Department of Commerce. A majority of the products classified under this schedule contributed to the rise in this year's figure, but it is doubtful if the aggregate volume of shipments much exceeded those recorded for the corresponding month last year. A number of the larger items, such as newsprint, book paper, overissue, newspapers, boards of all classes except insulating and wallboards, and boxes and cartons, show a substantial decrease. These losses were offset to some extent by increases registered in shipments of writing and surface-coated papers, paper bags, and a number of items of secondary importance from the standpoint of volume. On the whole exports of better grade papers and converted paper products appear to be in a better position than they were 12 months previous, while exports of the coarser papers and boards have fallen off in volume.

Exports of paper base stocks during the month of July attained a value nearly three times the amount recorded for July 1935. As usual sulphite woodpulp accounted for the greater portion of this amount. July exports of this item comprised 13,535 tons of bleached and 8,495 tons of unbleached pulp, with an aggregate value of $1,178,688 as against 5,971 tons of sulphite pulp valued at $351,364 during July 1935. Next in importance to sulphite pulp were paper making rags, valued at $62,701 and other waste valued at $44,242. The remainder consisted of a small amount of pulpwood and wood pulp. Exports of all paper base stocks during July reached a total figure of $1,322,909, as compared with $469,944 during July of last year.

Imports of paper base stocks were a third higher in value during July than during the same month of last year. This increase was largely due to the heavier arrivals of wood pulp, which increased 45 per cent in volume. Imports of pulpwood were slightly higher in volume and to the extent of 10 per cent in value. Imports of rags and other waste increased nearly 30 per cent in volume and were 65 per cent higher in value. Total imports under this group were valued at $9,555,299, of which $7,444,412 represented 208,100 tons of woodpulp; $1,655,692 represented 189,174 cords of pulpwood, and $455,195 represented 12,880 tons of rags and other waste.

Newsprint imports during July were 8 per cent higher in volume and 11 per cent higher in value than during July, 1935. Arrivals of other paper and paper products increased 70 per cent in value, due principally to heavier receipts of wrapping papers, boards, and cigarette paper. The aggregate value of these products during July was $1,199,295, contrasted with $705,764 for the month of July, 1935. Newsprint imports, amounting to 205,704 tons, were valued at $7,254,677, bringing the total up to $8,453,972, as against $7,238,231 for the month of July, 1935.

UPTURN IN HEAVY INDUSTRY IS SHOWN IN STEEL GAINS

The increased activity in heavy industry was reflected in the remarkable increase in output of heavy steel products during the first half of the year, according to a study by the American Iron and Steel Institute. Total production of finished steel products was 17,261,000 tons, an increase of 32 per cent over the first half of 1935, but of this increase heavy products accounted for 44 per cent of the gain while lighter forms of steel rose only 20 per cent.

The lighter steel products, which go largely into automobiles, farm equipment, refrigerators and other articles for personal use, totaled 7,333,000 tons, an increase of 1,200,000 over the period last year.

Heavy steel, including structural shapes, rails, pipe, bars, plates and like products used by railroads, utilities and for construction, totaled 9,928,000 tons, a gain of 3,000,000 over the corresponding months of last year. Light products accounted for 47 per cent of all finished steel in the half of 1935, but only 42.5 per cent in 1936. Heavy products increased its proportion from 53 per cent in 1935 to 57.5 this year.

"Demand for rails, track accessories, car wheels and axles in the first half of this year amounted to more than 1,000,000 tons, nearly 70 per cent above the same period of 1935," the survey says. "The output of structural shapes, concrete reinforcing bars, plates and other products used in construction enterprises likewise increased 70 per cent between the two periods, amounting to 2,492,-

000 tons in the first six months of 1936, as against 1,467,000 in the corresponding months of 1935.

"Production of steel pipe, a large part of which is required by public utilities and petroleum producers, and in building construction, amounted to about 1,280,000 tons, an increase of 65 per cent over the first half of last year.

"Among the lighter products the most striking gain was recorded in the output of sheet steel, of which nearly half goes into automobiles, and about one-sixth into furniture and household equipment. More than 3,300,000 tons were produced in the first six months of 1936, about 24 per cent more than in the corresponding period of 1935," the report concludes.

Paper Trades Map Cooperative Plan

Asserting that his industry will try and demonstrate that "voluntary cooperation in business may be expressed in binding commitments of a lawful nature which will be performed in the interest of the trade and of the public," Richard C. Kettles Jr., chairman of the Paper Trade Council of New York, announced on Friday of last week that the group had approved a program of its organization committee for the distribution of fair-trade practice-form contracts among paper distributors and wholesalers of the metropolitan area.

The experiment, he added, will demonstrate that cooperation in business "can be made more than pious expressions at trade association meetings."

The contracts submitted to the metropolitan paper distributing trade calls for the posting of a cash bond to assure compliance. In addition to the prohibition against the usual unfair trade practices, certain novel provisions include clauses closely identified with the Robinson-Patman Act. According to Mr. Kettles, provisions of the Robinson-Patman Act applying on interstate commerce are also made applicable to intrastate commerce under the contracts.

The Paper Trade Council is composed of representatives of the Paper Association of New York, the Metropolitan Bag and Jobbers Association, the Cosmopolitan Paper and Twine Association and the New Jersey Paper Trade Association, representing the paper-distributing business in the metropolitan area.

Mr. Kettles, who also is president of the Paper Association of New York, said Friday that he regards the council's program as of general importance for all business since it will show the way for voluntary action in eliminating evils and organizing for adequate public service. The program and proposed contract are to be submitted to the associations representing the paper distributing trade in the metropolitan district for their approval.

"By the proposed contract," Mr. Kettles said yesterday, "the paper distributing trade in this district proposes to put and keep its own house in order. It proposes to assure those whom it employs both fair wages and decent working conditions and to assure to the public fair service in the distribution of paper, one of our most basic necessities, at fair prices. By making competition more orderly, it proposes to make it fairer and keener."

The pulpwood cut on Crown lands in New Brunswick showed a substantial rise in the year ending August 1, 1934, but a drop in 1935, with only 114,000 cords taken from Crown lands in 1933, the pulpwood cut jumped to 230,000 cords for the year ending August 1st, 1934, and then dropped to 129,000 cords for August 1, 1935.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES

Month	1936	1935	1934
January	76.1%	65.8%	.....
February	77.9%	70.0%	.....
March	76.0%	70.5%	.....
April	82.3%	70.0%	.....
May	81.6%	69.4%	.....
June	80.7%	72.3%	.....
July (b)	80.0%	67.8%	.....
August	81.7%	70.9%	.....
September (c)	.....	75.0%	59.4%
October	.....	75.6%	64.7%
November	.....	75.3%	61.7%
December (a)	.....	74.3%	62.1%
Year	.....	71.2%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1936		CORRESPONDING WEEKS, 1935	
*August 8	80.3%	August 10	70.0%
*August 15	81.0%	August 17	70.8%
*August 22	81.6%	August 24	70.4%
*August 29	83.9%	August 31	72.6%
*September 5	79.4%	September 7 (c)	76.6%

The following statistics show the number of mills reporting by ratio groups:

Ratio Limits	Number of Mills Reporting, Current Weeks: Aug. 8, 1936	Aug. 15, 1936	Aug. 22, 1936	Aug. 29, 1936	Sept. 5, 1936
0% to 50%	89	92	81	74	50
51% to 100%	241	235	245	241	142
Total Mills Reporting	330	327	326	315	192

* Subject to revision until all reports are received.
These data exclude (a)—Christmas Day, (b)—Fourth of July, (c)—Labor Day.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours," were as follows:

Month	1936	1935	1934	Month	1936	1935	1934
January	61%	61%	....	July	69%	59%	....
February	67%	67%	....	August	....	65%	....
March	68%	67%	....	September	....	69%	62%
April	70%	61%	....	October	....	76%	63%
May	68%	61%	....	November	....	70%	56%
June	68%	65%	....	December	....	60%	(a)53%

Week ending August 8, 1936—71%
Week ending August 15, 1936—74%
Week ending August 22, 1936—75%
Week ending August 29, 1936—76%
Week ending Sept. 5, 1936—78%

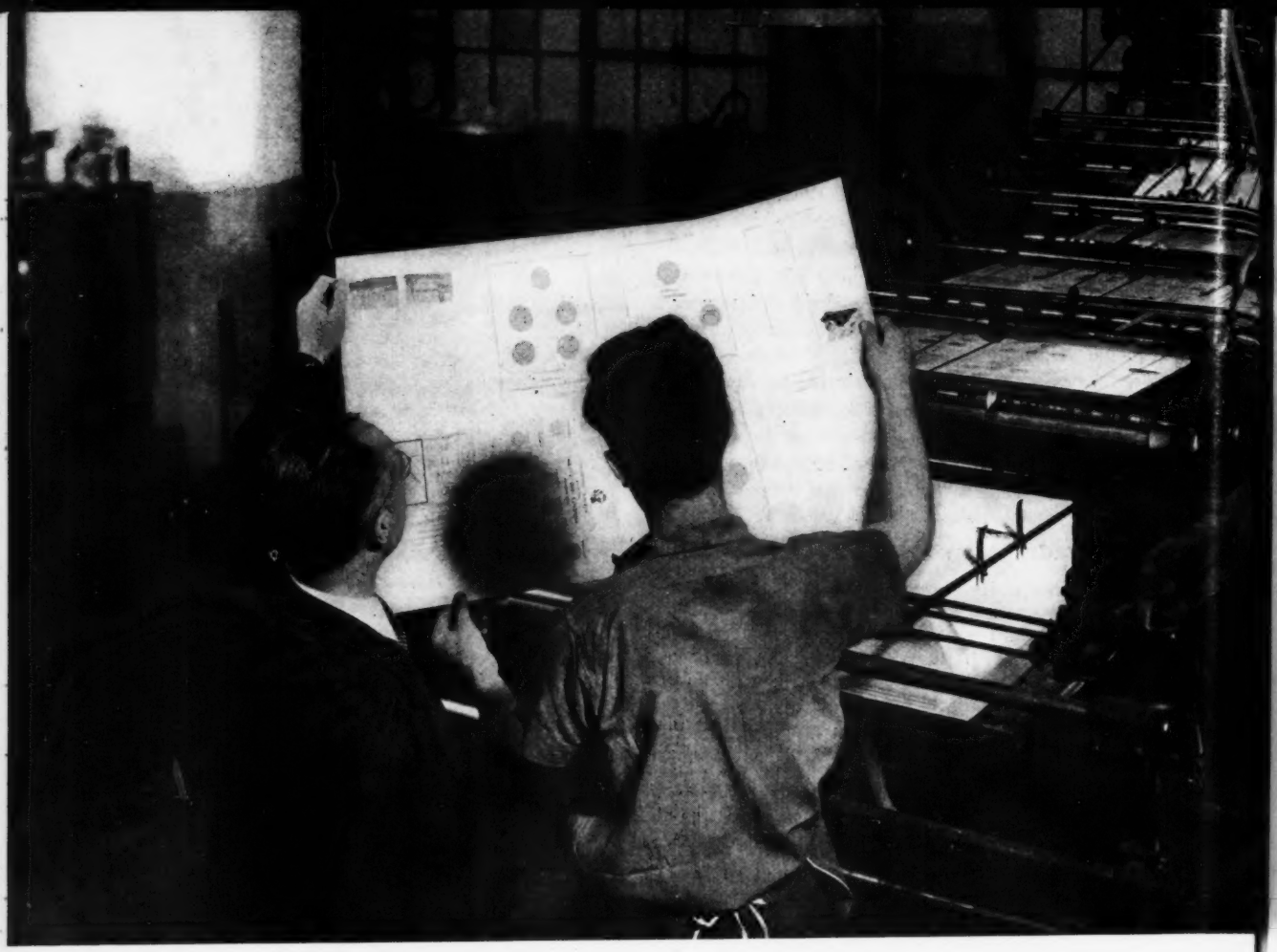
Celotex Corp. Increases Profit

The Celotex Corporation for the nine months ended July 31 reports net profits of $404,972 after interest, depreciation and other charges but exclusive of Federal income taxes, for which company has statutory provisions. This net profit, on basis of stock outstanding at beginning of fiscal year, is equal, after preferred dividend requirements, to $1.10 a share on 268,685 no-par shares of common stock. Combined reports of receivers and trustees of Celotex Company showed a net loss of $5,875 in same period of 1935 after charges and after the final payments of $77,500 to receivers and counsel. Quarter ended July 31: Net profit, $172,492 after charges, equal, after preferred dividend requirements, to 50 cents a common share, compared with $180,499, or 53 cents a common share, in preceding quarter.

Carter Appeals to N. H. Voters

[FROM OUR REGULAR CORRESPONDENT]

NASHUA, N. H., September 14, 1936—Eliot A. Carter, active in the paper industry for twenty-five years and for some time treasurer of the Nashua Gummed and Coated Paper Company here, is a candidate for the Republican nomination for Governor of New Hampshire. He finished his unique one-week campaign Saturday night with a radio talk which set forth his qualifications for the office.



"Okay"!

And no wonder—for coming through this printer's press is one of those "better" printing jobs done on Zinc Sulphide Pigmented paper. Better because the reproduction of his type and delicate halftones is enhanced by the brilliant whiteness of the paper. Better, too, because the Zinc Sulphide prevents any shadowy "show through" from marring the easy reading, clean cut appearance of his work.

Cryptone and **Albalith** Zinc Sulphide Pig-ments can be advantageously used in practically all types of white paper. And they offer an economical means of producing more opaque, whiter and brighter papers that will please *everyone*—the dealer, the printer and the consumer.

Our Technical Service Staff will welcome an opportunity to discuss the application of these pigments to your papers.

THE NEW JERSEY ZINC COMPANY
160 FRONT ST., NEW YORK

ZINC SULPHIDE PIGMENTS IN PAPE

Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

An Accurate Method of Sampling Beaters for Consistency

By Stephen A. Buckingham[1]

Abstract

A description is given of a very accurate method of taking consistency samples from a beater. Data are given to show the reliability of the method.

The consistency at which stock is beaten is sometimes quite important in determining the quality of beating obtained. Unless accurate control is maintained over the amounts of water and dry stock furnished to the beater, quite considerable consistency variations may occur from engine to engine. Such variations are readily corrected if consistency tests are made on each engine after furnishing and enough water added to bring the engine to a standard value of consistency. The vital point in a determination of beater consistency is the method of sampling.

When a beater has been running for some time after the completion of furnishing, the stock is usually well enough mixed that any snatch sample is fairly representative for obtaining the strength characteristics of hand made sheets, or such quantities as freeness or filler content. However, the consistency always varies from top to bottom in a beater, so that a consistency sample must somehow be made cross-sectionally, from top to bottom of the beater, in order to be representative.

Cross-sectional Method

A metal cup, about three inches deep and two inches in diameter was held under the hood, in front of the roll, so that it was filled by the stock which was carried around the roll and fell back into the beater in front. The stock was leveled off to the rim of the cup and the remainder was taken as the sample.

Dish Method

A large covered dish was lowered into the beater to a point half way down in the stock. The cover was removed and the dish allowed to fill with stock. The cover was then slid on again, sidewise, and the dish removed from the beater.

Hand Method

The arm was plunged half way down in the stock and the hand cupped and withdrawn full of stock.

Results

Several tests were made to compare the three methods and determine their accuracy. In each test, samples were taken by all three methods. Three samples were taken by each method, at times varying from five minutes to an hour and a half after the completion of furnishing. The results of one such test are given in Table I.

TABLE I

Sample	Consistency	Error	Error in Average
True Consistency	6.55%	....	...
Cross-sectional Method No. 1	6.54%	—0.15%	...
No. 2	6.57%	+0.30%	...
No. 3	6.54%	—0.15%	...
Average	6.55%	0.20%	0.0%
Dish Method No. 1	6.42%	—1.98%	...
No. 2	6.46%	—1.53%	...
No. 3	6.56%	+0.15%	...
Average	6.48%	1.33%	—1.1%
Hand Method No. 1	7.03%	—7.33%	...
No. 2	7.06%	—7.80%	...
No. 3	6.91%	—5.50%	...
Average	7.00%	6.88%	—6.8%

The value of the true consistency, given in Table I as 6:55 per cent, was computed from the furnish. All items of the furnish were carefully weighed or measured before being furnished. The details of the furnish used in the tests of Table I are given in Table II.

TABLE II

Ingredient	Oven-dry Weight	Wet Weight
Soda Pulp	892 lbs.	22,820 lbs.
Semi-bleached	....	....
Sulphate Pulp	458 lbs.	565 lbs.
Clay	270 lbs.	848 lbs.
Rosin Size	24 lbs.	777 lbs.
Alum	34 lbs.	612 lbs.
Gum Ghatti	6 lbs.	89 lbs.
Total	1,684 lbs.	25,711 lbs.

The Soda Pulp was furnished in slush form and its consistency determined from a composite sample made up of 16 half pint samples taken at intervals while the pulp was being run into the beater. The sulphate pulp was furnished in the form of dry laps, on which a dry test had been made according to the standard method for sampling bales of pulp.

The remaining consistency values in Table I were obtained from the samples taken by the various methods. Each sample was weighed wet. Then most of the water was filtered off and the residue dried bone-dry and weighed again. The bone-dry weight was corrected for the alum and size lost in filtering. The consistency was then computed as the ratio of the corrected dry weight to the wet weight.

[1] Chemist, S. D. Warren Co., Cumberland Mills, Maine.

Discussion of Results

Examination of Table I will show that the cross-sectional method of sampling for consistency is very definitely better than either of the other methods. In fact, the agreement between the results of the cross-sectional method and the true consistency is so good as to be purely accidental, since the differences are well within the limits of accuracy of the experiment. It will be seen that the error of the average value of consistency is zero for the cross-sectional method, but 1 per cent for the dish method and nearly 7 per cent for the hand method. The dish method gives low values, while the hand method gives very high values, as would be expected. The maximum error for an individual reading is only 0.3 per cent for the cross-sectional method, while it is 2.0 per cent for the dish method and nearly 8.0 per cent for the hand method. The results for the cross-sectional method show that it is possible to obtain a representative consistency sample within a few minutes of the completion of furnishing.

Conclusions

We see from the foregoing discussion that the cross-sectional method of taking consistency samples is very accurate, even if only a single relatively small sample is taken. This method is very simple and easy to use.

Acknowledgment

The author is indebted to The S. D. Warren Company for permission to publish these results, which were obtained in their plant at Cumberland Mills, Maine.

Historical Development of the Tall Oil Industry*

(Tall Oil I)

By Ralph H. McKee[1] and Helmer L. Blengsli[2]

Coniferous woods, which are those generally used for the manufacture of kraft (sulphate) cellulose, contain small quantities of rosin and fatty acids in the form of esters. The percentages of fatty acids and rosin in the wood depend upon several factors, of which the most important are the kind of wood, the climatic conditions under which the wood grew, the character of the soil, the age of the tree, and finally upon the season of cutting.

Table I represents a fair average of the fat and rosin contents of European pine and spruce.

TABLE I (1)[1]

	Pine	Spruce
Fatty Acids, per cent	1.54	0.28
Rosin, per cent	1.62	0.35
	3.16	0.63

[1] This figure refers to bibliography.

During the treatment of the wood in the kraft pulp process the fat and rosin in the wood are completely saponified. The black liquor from the cook will thus contain the fatty acids and rosin in the form of sodium soaps. Upon cooling the spent liquor the soaps separate out and float on the top due to the salting-out action of the strong alkali.

By treating this dark brown, impure, and highly ill-smelling sulphate soap with an acid, or an acid salt solution, the fatty acids and the rosin acids are liberated, yielding a more or less dark brown, viscous, oily product—the "tall oil."

The earliest publication *(2)* dealing with the analytical determination of the different organic and inorganic constituents in the sulphate black liquor was written by Peter Klason in 1893. Since in this paper Klason points out the fact that the sulphate black liquor contains rosin acids the publication may be considered to mark the very beginning of the real knowledge of tall oil.

The organic acids in the black liquor apparently had not at this early date been visualized as a marketable product nor as a raw material for any particular purpose. There is reason to believe that the first researches on black liquor, with respect to the resinous and fatty materials, were called for more on account of the trouble these materials caused in the black liquor regeneration, and more particularly so on account of the "rosin spots" formed in sulphite papers *(3)*, than with a commercial application of the tall oil in view.

According to Dr. Sandquist *(4)* the commercial interest in tall oil began in Sweden during the year 1901. The pioneering work on industrial production of tall oil was done at Skutskär, Sweden, by Ernst Larsson in 1902. In 1903 the production was apparently well established and some marketable product available.

In 1905 the first important publication on tall oil appeared. It was by Ernst Larsson *(5)*. This paper furnished valuable analytical data on Swedish tall oil necessary for an intelligent use of the material and pointed the way for future investigation.

As a proper name for the oily material derived by splitting the sulphate soap with an acid, Larsson suggested *tallolja*. This is a name derived from the Swedish *tall* (pine) and *olja* (oil) and therefore indicates an oil from the pine. From this name the English tall oil and the German tallöl are derived. Another name, originating in the Swedish language, flytande harts; German, flüssiges Harz, and English, liquid rosin, has occasionally been used. Since this name is really misleading and probably originated at a time when tall oil was considered a mixture of a solid rosin and liquid resins *(6)* its use should cease as it seems to have no justification.

As to the industrial uses for tall oil, if any, in its earliest days very little is known. Larsson *(5)* prepared various resinates, and suggested their use as dryers in paint and varnishes. Realizing that tall oil was of a very complicated composition, about which further knowledge was essential for intelligent applications, he appealed to scientists with experience in terpene chemistry to give the tall oil a thorough chemical investigation. Fahrion followed Larsson's appeal and in 1908 he finished his first investigation of a sample of Swedish tall oil submitted to him by Larsson from Stora Kopparbergs Bergslags Aktiebolag, Falund in Sweden. In 1909 Fahrion's findings were published under the title "Über ein flussiges Harz" *(6)*. Fahrion's investigation on tall oil was rather extensive but he failed to recognize the presence of fatty acids.

A real advancement in tall oil research technic was introduced at this time. In order to separate the liquid and

* The material of this paper was taken from the dissertation submitted by Helmer L. Blengsli for the degree of doctor of philosophy at Columbia University.

[1] Member TAPPI, Professor of Chemical Engineering, Columbia University, New York, N. Y.
[2] Now with Hercules Powder Company, Wilmington, Del.

solid matters in the tall oil, Fahrion applied esterification by means of alcohol and sulphuric acid. The esterification produced an oil which could be separated from the uneserifiable resinous substance in the tall oil. But this did not lead Fahrion to suspect that the oil was due to liquid fatty acids. He merely considered the esterifiable liquid constituents as liquid resins. Fahrion's conclusion was, therefore, that tall oil consisted mainly of one or more rosin acids of the composition $C_{20}H_{30}O_2$, and that the solid rosin acids were dissolved in liquid rosin acids.

Simultaneously with Fahrion, Bergström and Fagerlind were working on the tall oil problem. In their report to Jernkontoret, Stockholm, 1908 *(7)*, they mention that well defined crystals of organic acids were derived from refined sulphate soap.

In 1910 Bergström *(8)* reported that tall oil twice distilled under vacuum gave a yellow oil with an odor of fatty acids. In course of the report Bergström stated that the oil thus obtained contained fatty acids of the oleic acid series and still more unsaturated acids, probably of the linoleic acid series.

In his report to Jernkontoret in 1911 *(9)* Bergström stated that the tall oil contained palmitic acid and probably also oleic acid and linoleic acid, besides a mixture of rosin acids of the composition $C_{20}H_{30}O_2$. He also definitely established that tall oil contains phytosterin. Two years later Bergström reported a partial analysis of tall oil *(10)* which may be considered a fair average of the European tall oil composition as we know it today.

As may be seen from this brief survey of the historical development of tall oil knowledge the fundamental investigations were carried out in Sweden and Germany. This fact may be attributed to the circumstance that the development of the forest products industries of Sweden since the earliest days of applied chemistry has been helped by the inspiring and guiding interest of outstanding scientists. The contribution of Germany was doubtless in the first place urged by forces of scientific curiosity, but probably also by their ever keen alertness to know all possible sources of supplies of raw materials.

Like so many other recent developments, the World War stimulated tall oil progress in Europe. This may be clearly seen from Table II which gives the prices paid in Europe for crude tall oil during the years 1903 to 1921 *(4)*.

TABLE II
PRICES OF CRUDE TALL OIL

Year		Cents per lb.
1903		1.8
1909		1.1
1917		24.5
1918		79.5
1921		2.0
1921	Refined	12.2

It is obvious that the shortage of fat during the later part of the World War was extremely favorable to the development of a new source of fat and rosin supply.

Although occasionally tall oil recovery plants were put into operation primarily as emergency measures, the great majority of the plants were there to stay. The advancement in application of chemistry and chemical engineering to the tall oil refinery problems made it possible for the leading crude tall oil producers to take advantage of the considerable price difference between the crude and the more refined product.

Notwithstanding the fact that the composition of tall oil has been known fairly well for the last twenty-five years, the appreciation of the real values incorporated in this crude material is a rather new development. In the light of recent facts regarding the properties of the different constituents of tall oil, it is evident that the material should not be considered primarily as a source of rosin.

The possible tall oil production of the chief sulphate cellulose producing countries is considerable. The United States leads the list with a potential production capacity of more than 45,000 tons a year.

Up to the present time only minor attempts to recover and refine tall oil have been made on this continent. This must be ascribed to the fact that the tall oil has been considered merely a source of rosin. Being the world's leading producer and exporter of gum rosin and wood rosin no apparent need for a third source of this material has been felt.

This erroneous basis is lately being overcome and the American Naval stores industry is today faced with the possibility of an annual production of 25,000 tons of rosin as a byproduct from the tall oil industry, while the other constitutents of tall oil will demand a more prominent place in the market. Some constituents of tall oil will, no doubt, form the basis for new products of as yet only partially conceived scope.

The succeeding article on tall oil will discuss a new method of refining.

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(9) Bergström, H. *Ibid.*, 12, 507-18 (1911).
(10) Bergström, H. *Papier-Fabr.*, 11, 730-1 (1913).

TAPPI Notes

Vincent F. Waters, formerly engineer for the Wrenn Paper Company, is now with the Champion Paper and Fibre Company, Hamilton, Ohio.

D. L. Sherk has left the Mellon Institute, Pittsburgh, Pa., and is now with the Wood Conversion Company, Cloquet, Minn.

E. J. Kane, formerly of the Nekoosa Edwards Paper Company, is now in the development department of the American Can Company, New York, N. Y.

A. H. French, formerly of the A. E. Staley Company, Decatur, Ill., is now with the American Cyanamid and Chemical Company, New York, N. Y.

F. W. Adams, recently of the Massachusetts Institute of Technology, Department of Chemical Engineering, is now with the Mellon Institute.

Paul Hodges has left the Gulf States Paper Company, Tuscaloosa, La., and is now with the Scott Paper Company, Chester, Pa.

John H. Rich, recently with the Foster Paper Company, Utica, N. Y., is now with the Newton Falls Paper Company, Newton Falls, N. Y.

New Waldron Fluid Ink Presses

The John Waldron Corporation of New Brunswick, N. J. century old builders of paper converting machinery, announce the development of the new Waldron Fluid Ink Presses. These new Waldron machines, regardless of size, are all purpose fluid ink presses, adaptable for use of water colors, aniline, pigmented, lacquer, rotogravure and, if necessary, regular printing inks. They also accommodate themselves to surface printing using practically any kind of rollers, plates or intaglio engraved shells. Their modern design permits frames and color units to be added after installation without discarding original machine. Either center or drum type rewinding may be built into the outfits as well as the drying apparatus.

Treatment of Offset Papers for Optimum Register*

By Charles G. Weber[1] and Martin N. V. Geib

Abstract

Paper distortion and misregister of color prints are often serious problems in offset printing; even when the paper is conditioned to equilibrium with the pressroom air and printed under controlled atmospheric conditions. Hence, a study was made of the relation of the hygrometric condition of papers at the start of the first print to changes in moisture content during printing, and to the register of prints.

Experimental printings were made on papers in various hygrometric conditions relative to the surrounding atmosphere, and the behavior during multicolor printing was determined by finding the moisture-content changes, dimensional distortion, and closeness of register. Papers conditioned to equilibrium with the pressroom air by the usual method expanded during the first few printings so that succeeding colors printed inside the first. It was found possible to maintain constant dimensions by two methods of conditioning. Papers conditioned first at a very high relative humidity, then to equilibrium with the pressroom atmosphere by distortion, remained fairly constant. Also, papers prepared for printing by conditioning to equilibrium with relative humidity 5 to 8 per cent above the pressroom condition gave very satisfactory results. The latter procedure is the more feasible for commercial practice as it requires conditioning the paper but once. All dimensional changes during printing were accounted for by changes in moisture content, and no evidences of mechanical stretch were found.

The effects of paper conditioning on the hygrometric changes of paper, and the constancy of its dimensions are of great importance in offset printing, because the most serious difficulty encountered, that of obtaining close register of successive color prints, is involved. Lack of information on the subject has resulted in failure to obtain the full benefits of costly air-conditioning equipment and often in wrongfully attributing misregister to the character of the paper being printed rather than to its hygrometric condition.

In previous articles on the influence of atmospheric changes on moisture content and dimensions *(1)* of paper and the relation of paper properties to register *(2)* the importance of direction coefficient of expansion in paper and of constant atmospheric conditions during printing were pointed out. Further register studies revealed that paper commonly changes dimensions during printing, even when adjusted to moisture equilibrium with the pressroom air and printed under constant conditions of humidity and temperature. Hence the effects of various conditioning factors on changes of moisture content and distortion during printing were investigated in the air-conditioned offset printing plant of the Coast and Geodetic Survey of the U. S. Department of Commerce.

This is one of a series of studies made to assist lithographers in reducing serious economic losses caused by difficulties in offset printing. The work is being done with the active cooperation of the Lithographic Technical Foundation and financial assistance of several offset-paper manufacturers. The industry assists through an advisory committee composed of lithographers, paper manufacturers, and printing-equipment manufacturers under the chairmanship of R. F. Reed, Director of Lithographic Research, University of Cincinnati.

Properties of Offset Papers Studied

Three different papers were used in the investigation; a chemical wood-fiber offset paper, found in previous studies to have low machine-direction expansion; *(3)* a rag-content bond; and a 100-per cent rag chart paper, surface sized with glue. Although no attempt was made to study the response of different papers, the three papers used represent widely different types. Hence, it is believed that the results obtained will have general application. Test data on the papers are contained in Table I.

TABLE I.—LITHOGRAPHIC-PAPER TEST DATA [a]

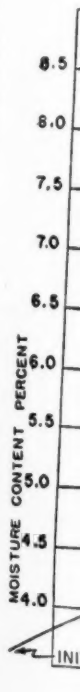
Paper	Weight 25x40 : 500 Pounds	Thickness Inch	Bursting strength Points [c]	Folding endurance [b] Machine Double folds	Folding endurance [b] Cross Double folds
Chemical wood offset paper No. 1	73	0.0054	26	52	10
Rag-content bond	75	.0045	65	1,485	615
Rag chart paper (tub-sized with glue)	125	.0082	95	15,480	8,330

Paper	Degree of sizing (dry indicator method) Seconds	Expansion per 15 per cent R. H. increase (machine dir.) Per cent	Fibers: Rag Per cent	Fibers: Chemical wood Per cent
Chemical wood offset paper No. 1	45	0.035	...	100
Rag-content bond	55	.071	85	15
Rag chart paper (tub-sized with glue)	150	.063	100	...

[a] All tests, except expansion, made by methods of the Technical Association of the Pulp and Paper Industry.
[b] For test specimen 15 mm wide and 90 mm between jaws.
[c] Bursting pressure is lb/in.(2) through a circular orifice 1.2 inches in diameter.

Experimental Printing Procedure

The effects of conditioning treatment of paper on the response to offset printing were determined by experimental printings on lots of paper differing only as regards hygrometric condition at the start of the first print. The hygrometric condition was controlled by taking the paper through definite conditioning cycles, and printings were made under controlled conditions of humidity and temperature. The pressroom atmosphere was maintained at 45 ± 2 per cent relative humidity during a part of the study and at 49 ± 2 per cent for the remainder. In the room where the paper was conditioned and stored, a relative humidity 5 to 8 per cent above the pressroom condition was maintained after the benefits of this arrangement were indicated in preliminary tests. The conditioning facilities of the National Bureau of Standards were used for preparing many of the papers, and these papers were taken from the Bureau laboratory to the printing plant in hermetically sealed containers. Each lot of paper treated contained not less than 10 sheets, and the experimental



Equilibrium

* Research Paper 859, J. Res. National Bureau of Standards, Feb., 1936.
[1] National Bureau of Standards, Washington, D. C.

papers were printed with commercial runs. They were placed at the bottom of the pile of paper being printed so as to receive no more than the normal exposure between printings. Papers were not inspected between printings and received no handling, except as part of the commercial run. In some of the work, the corner register marks were "staggered" to facilitate color identification and measurement after multicolor printings. Closeness of register was determined by measuring with a micrometer rule *(4)*. The center sheets of each lot of paper were used for register measurements and moisture determinations. Printings were made on two presses with similar results. These were Harris, single-color, offset presses of late design, sizes 36 by 48 and 38 by 52. Both presses were in practically new condition. Inasmuch as misregister in the short or around-the-cylinder direction is not generally considered of great importance because it can be corrected by press adjustment, only the long-direction register was studied.

Relation of Hygrometric Condition of Paper to Response in Printing

1. VARIATIONS IN MOISTURE CONTENT DURING PRINTING

Papers conditioned to equilibrium with the pressroom air, then printed in 5 to 9 colors, were found to be still approximately in equilibrium but with increased moisture content. The increased moisture content, averaging 0.5 per cent, was obviously due to press moisture picked up during printing. The fact that this added moisture could be held while the paper remains in eqilibrium indicated that hysteresis was involved, since it is well known that the moisture content of paper under any given conditions may vary by more than 1 per cent according to the history of conditioning *(5)*. This hysteresis effect is illustrated in Fig. 1, which shows the curves for maximum and minimum moisture contents for a series of offset papers. From a consideration of these data it appeared possible for papers below the maximum curve to increase the equilibrium moisture content; while paper on the maximum curve obviously could not. Hence, it seemed likely that paper conditioned by desorption from an extremely high moisture content to eqilibrium with the pressroom atmosphere and printed under constant atmospheric conditions, would not change as long as it remained in equilibrium. In order to try this, papers were preconditioned in humidities considerably higher than that of the pressroom air, then conditioned to equilibrium with the pressroom air and printed. Results of experiments of this kind are shown graphically in Fig. 2. It will be noted that these papers remained practically constant as regards moisture content during printing. However, this method of conditioning is not feasible for most commercial print shops as it requires two conditioning treatments under widely different atmospheric conditions, and it introduced curling difficulties with the glue-sized paper. Hence, other means of accomplishing similar results were investigated.

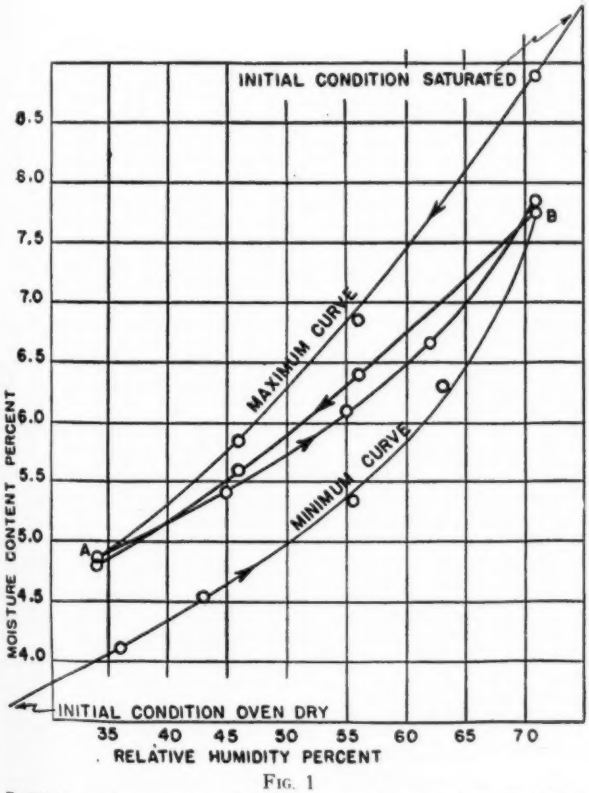


FIG. 1

Equilibrium moisture content of offset papers at different relative humidities.

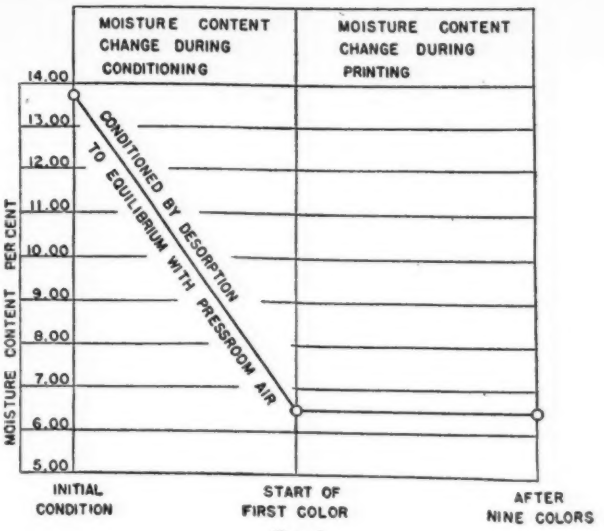


FIG. 2

Influence of hygrometric condition of paper on moisture-content change during multicolor offset printing. Papers conditioned by desorption.

Offset papers are normally between the maximum and minimum conditions when received at a print shop, because they must be dried to a moisture content of less than 5 per cent in manufacture to permit calendering. To get the moisture content high enough again to place it on the maximum, or desorption, curve after conditioning in the pressroom where 45 to 50 per cent relative humidity is commonly maintained, would require putting back 5 per cent of moisture, or more. Few mills are equipped to do this, and the moisture content is seldom above equilibrium with 45 or 50 per cent relative humidity when received. Such papers gained moisture during printing when conditioned to equilibrium with the pressroom air at the start. Therefore papers were prepared for printing by raising the moisture content above equilibrium with the pressroom air to provide an excess of moisture that might be lost to the air during printing to compensate for the press moisture picked up. These experiments were very successful. It was found that the moisture content of paper conditioned to equilibrium with relative humidity 5 to 8 per cent above the pressroom condition remained practically constant during printing. Those conditioned still higher

lost some moisture. Typical results showing changes of moisture content during printing are shown in Fig. 3.

All papers printed reached hygrometric equilibrium with the pressroom air after five or six colors were printed, but never before three colors were printed. This indicates that the exposure of the paper during printing is sufficient to adjust the moisture content slowly to conform to the room condition. However, it gives no clue as to why the equilibrium moisture content is 0.5 per cent higher after printing than before. That is explained, it is believed, by the manner in which the press moisture is applied.

The mutual repellance of greasy ink and water is the basis of lithography. Offset lithography employs a metal plate on which the design is water-repellant and the remainder is grained to hold water. In printing, water is applied to the plate, and it wets all of the plate except the design. Ink is next applied, and it adheres to the design, but is repelled by the wet areas. The image is then transferred indirectly from the plate to the paper by printing on a rubber blanket from which the actual impression is made. In this operation, water from the wet, nonprinting areas of the plate is transferred to the paper in the same manner that the ink is transferred. Hence, it is likely that the surface of the paper in the wetted areas is at or near the saturation point when the paper goes into the pile on the delivery end of the press. In the pile, the excess moisture can leave the wet areas only by diffusion, and it appears possible that this leaves small portions of the paper with a moisture content equivalent to that on the curve for maximum or desorption moisture content. This may happen with each printing until all of the surface contacting the blanket has been raised to near the condition of maximum moisture content or covered with water-resisting ink. This explanation is shown graphically in Fig. 4, which shows the minimum or adsorption and the maximum or desorption curves, and theoretical behavior of moisture content during printing for paper: "A" in equilibrium at the start; "B" conditioned to equilibrium at relative humidity 7 per cent above the pressroom condition at start.

It is not probable that A—C and B—C represent the actual paths for total moisture content, but rather the mean between the unmoistened portions of the paper, and the smaller wet portions that follow the path 1—2. The

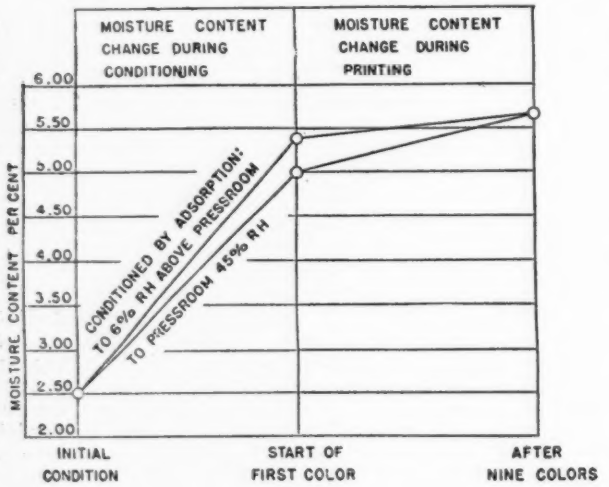


FIG. 3

Influence of hygrometric condition of paper on moisture-content change during multicolor offset printing. Papers conditioned by adsorption.

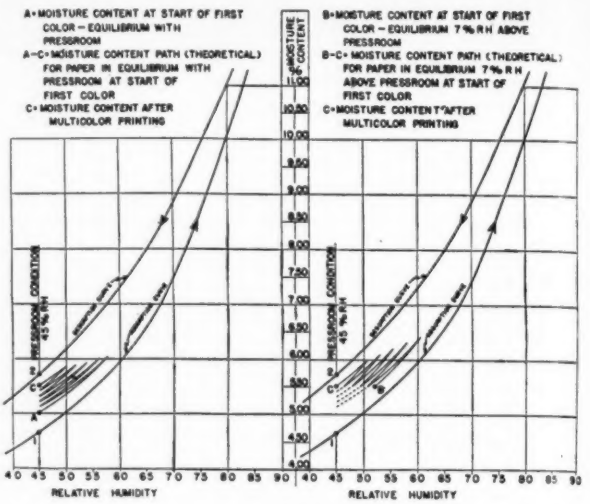

A=MOISTURE CONTENT AT START OF FIRST COLOR – EQUILIBRIUM WITH PRESSROOM
A–C=MOISTURE CONTENT PATH (THEORETICAL) FOR PAPER IN EQUILIBRIUM WITH PRESSROOM AT START OF FIRST COLOR
C=MOISTURE CONTENT AFTER MULTICOLOR PRINTING
B=MOISTURE CONTENT AT START OF FIRST COLOR – EQUILIBRIUM 7% R H ABOVE PRESSROOM
B–C=MOISTURE CONTENT PATH (THEORETICAL) FOR PAPER IN EQUILIBRIUM 7% R H ABOVE PRESSROOM AT START OF FIRST COLOR
C=MOISTURE CONTENT AFTER MULTICOLOR PRINTING
MOISTURE CONTENT %
PRESSROOM CONDITION 45 % R H
RELATIVE HUMIDITY
RELATIVE HUMIDITY

FIG. 4

Moisture-content behavior during multicolor offset printing. Minimum or adsorption curves, curves numbered 1, and maximum or desorption curves numbered 2.

steps in the curves A—C and B—C are based on the fact that, for the papers conditioned to equilibrium with the pressroom at that start, the moisture content increased approximately 0.5 per cent during five printings, or an average of 0.1 per cent per color. Actually, the increase was never in equal increments, the greatest increase being for the first colors. The dotted portions of curve B—C represent the probable path if the paper had been exposed sufficiently between printings to come to complete equilibrium with the air. However, the exposure for each color printing is apparently only sufficient for the paper to lose its excess moisture at about the same rate that it takes up press moisture, keeping a balance, when the excess moisture is approximately 0.5 per cent at the start.

The validity of the theory that the surface wetting during printing may raise the equilibrium moisture content of paper was checked by laboratory tests. Papers were moistened on one side with a damp sponge; one-half of each lot was conditioned immediately in an atmosphere of 50 per cent relative humidity and the other half left in the center of a pile 18 hours and then conditioned. The equilibrium moisture content for the half left in the pile 18 hours after moistening was higher in every case. The moistening and standing in the pile were analogous to what takes place for each color printing except that more water was applied in the former case.

2. Register of Prints

In all experiments, the register of successive prints was proportioned to the distortion of the paper during printing, and all measurable paper distortion was accompanied by corresponding changes in moisture content. Briefly, the misregister could in all instances be attributed to paper distortion due to gain or loss of moisture. The best register was obtained when the moisture content of the paper remained most nearly constant during printing. When printing with a normal amount of water on the plate, lowest change of moisture content and best register on commercial papers were obtained with paper conditioned to relative humidity 5 to 8 per cent above the pressroom condition. Paper was, therefore, best prepared for multicolor printing when the moisture content was about 0.5 per cent above equilibrium with the pressroom condition. The correct moisture content was obtained by conditioning in a

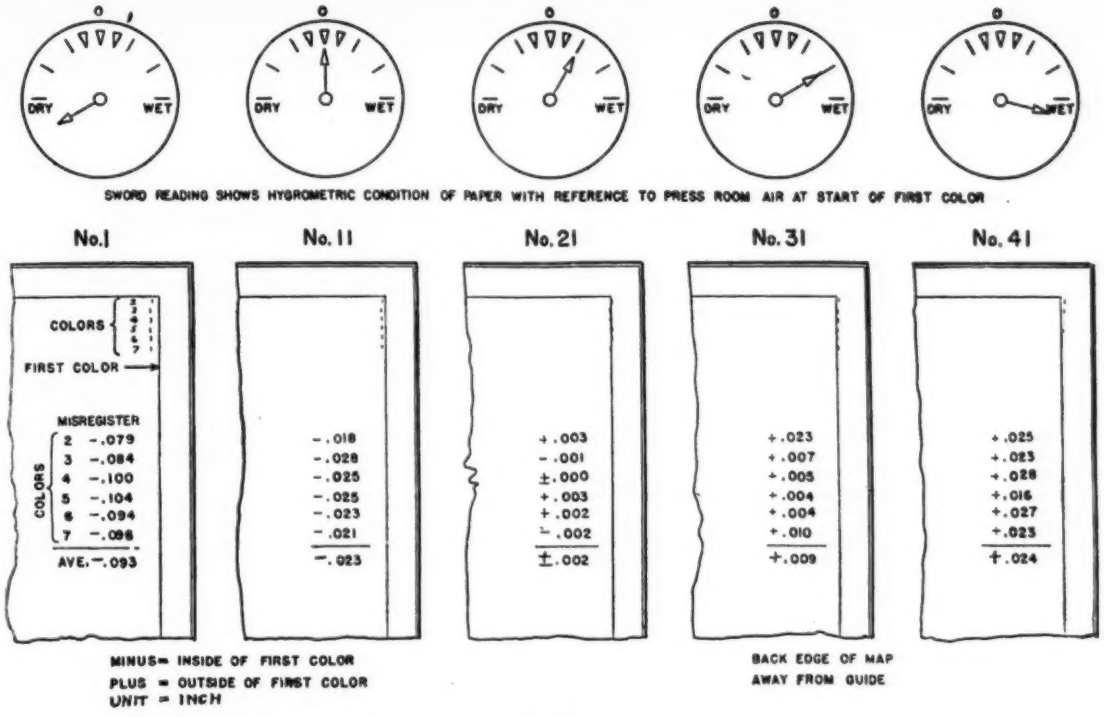


FIG. 5

Relation of paper conditioning to register. The sword-hygrometer readings, showing hygrometric condition at the start, are reproduced at the top, and the resultant register for each lot is shown directly underneath. The misregister is shown for the back edge of the map on the side opposite the guide. Plus or minus signs indicate whether the prints are long or shorter than the first color print. The values given are decimal fractions of an inch.

paper storeroom separate from the pressroom and under independent control. The sword type of hygrometric[2] was found very convenient for determining the hygrometric condition of paper relative to the surrounding air. The register in a typical 7-color experimental printing is shown in Fig. 5. Results are shown for five lots of wood-fiber offset paper, differing only as regards hygrometric condition at the start of the first print. In the illustration, the sword hygrometer readings for each lot of paper at the start, indicating the hygrometric condition of each relative to the pressroom air, are shown at the top. Under the sword readings, the closeness of register across the back edge of the print is indicated for each lot by reproductions of the back-edge corners opposite the guide.[3] The register marks were staggered down the side to facilitate comparison. The image width on these prints was 43 inches.

These data are of great importance. They show not only the optimum hygrometric condition of paper for close register in multicolor offset printing, but indicate to what extent a moist paper gives better results than a dry one. Paper No. 11, which was in equilibrium at the start, gave no better register than No. 41, which was moist relative to the pressroom air by a sword reading equivalent to 2 per cent of moisture content. Paper No. 31, moist by a reading equivalent to 1 per cent of moisture, gave much better register than the paper in equilibrium at the start. Optimum results were obtained with papers conditioned to relative humidity 6 to 8 per cent above that of the pressroom air, and these papers gave a moist reading on the sword as shown for No. 21 in the illustration. The reading indicates a moisture content approximately 0.5 per cent above equilibrium with the air. This conditioning practice has been followed at the Coast and Geodetic Survey on commercial jobs of 9 to 17 colors with most satisfactory results from the start. As compared with the former method of conditioning to equilibrium with the pressroom, it has resulted in better quality work, decreased spoilage, and higher production.

Where facilities are not available for conditioning in a room under separate control from the pressroom, the paper should be obtained from the manufacturer with moisture content adjusted to 0.5 to 1.0 per cent above that corresponding to equilibrium with the pressroom. This paper should be printed without conditioning. No job requiring fine register should be started unless the paper is moist relative to the pressroom air, as determined by the sword hygrometer or other equivalent means. Paper that has the moisture content adjusted at the mill will remain practically constant during shipment and storage if properly packed in cases, with water-resistant caseliners of good quality. The asphalt duplex type of wrapper is very effective for this purpose.

It is believed that plants without controlled humidity can benefit from these data as well as the conditioned plants. A plant should be provided with an instrument for checking the hygrometric condition of the paper and a reliable instrument for measuring the relative humidity of the pressroom atmosphere. The sword-type paper hygrometer and the wet-dry bulb psychrometer make a good combination.

Fine register can be obtained with the least difficulty in the plant without controlled air by printing the first color on paper giving a sword-hygrometer reading corresponding to No. 21 or 31 in Fig. 5. The humidity should be measured at the start and no subsequent colors printed unless the relative humidity in the pressroom is approxi-

[2] The Paper Hygroscope, Bulletin of the Lithographic Technical Foundation, New York.

[3] The back-edge corner of a print on the side opposite the guide is the point on the print furthest from all press alignment. Hence, it is the point of maximum lengthwise misregister.

mately the same as when the first color was printed. The paper should be protected from humidity changes between printings by moistureproof covers. If this procedure is followed, the most serious disadvantage of not conditioning the air will be the inability to print on the days when the humidity varies too widely from the condition under which preceding colors were printed. Various instruments for measuring relative humidity and temperature are described in a publication by R. F. Reed. *(6)*

Summary and Conclusions

The results obtained in printing papers varying as regards hygrometric condition at the start of the first-color print have indicated that practically all dimensional changes affecting register of prints are caused by changes of moisture content.

Commercial papers remain most nearly constant with respect to moisture content and dimensional changes and give best register when conditioned to equilibrium with relative humidity 5 to 8 per cent above that of the pressroom prior to start of the first-color printing and printed under constant conditions.

Where facilities are not available for conditioning paper to the higher relative humidity, the moisture content should be adjusted at the mill and protected during transit and storage, so that it will reach the printing plant with a moisture content 0.5 to 1.0 per cent above equilibrium with the pressroom air.

For the printing plant without controlled humidity, attention to the relationship between moisture content of paper and the relative humidity of the surrounding air is equally important. Paper with high moisture content should be required and no color printing should be started on paper that is dry relative to the surrounding atmosphere.

The sword type of hygrometer is a most convenient tool for determining whether paper is in proper condition for the first-color printing in multicolor work. It is in best condition when the sword reading taken in the pile of paper is "wet" relative to the pressroom air by an amount equivalent to 0.5 per cent of moisture content. In plants without controlled humidity, the relative humidity should be measured at the time of the first printing and no subsequent printings started when the humidity is widely different. It is particularly important not to print subsequent colors when the humidity is higher than it was for the first-color printing.

Literature Cited

(1) Weber and Snyder, *B. S. J. Research*, 12: 53, RP633 (1934).
(2) Weber, *B. S. J. Research*, 13: 609, RP730 (1934).
(3) *B. S. J. Research*, 13: 609, RP730 (1934) (Identified as paper no.).
(4) Weber, C. G., and Cobb, R. M. *B. S. J. Research*, 9: 431; RP480 (1932).
(5) Weber and Snyder, *B. S. J. Research*, 12: 53; RP633 (1934).
(6) Handbook of Air Conditioning for Lithographers, Lithographic Technical Foundation, New York.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Boards

Impregnation of Compressed Fiber Board. Charles W. Mudge, assignor to Standard Oil Development Co. U. S. pat. 2,031,973 (Feb. 25, 1936).—In order to prevent the bleaching or staining by water of wax-impregnated fiber board, the board is pretreated with a solution of not more than 10% hydrogen chloride in a lower aliphatic alcohol (preferably isopropyl alcohol) and (or) water, or with an aqueous solution of the alcohol.—A. P.-C.

Pressed Fiber Board and Method of Manufacture. Robert T. Pollock, assignor to Respats, Inc. U. S. pat. 2,029,034 (Jan. 28, 1936).—Hard pressed board is made from a mixture of mechanical wood pulp and of sawgrass or palmetto pulp.—A. P.-C.

Corrugated Board Industry; Origin and Future Possibilities. Papier-Ztg. 61, no. 1; 52, 54 (Jan. 2, 1936) —The corrugated board industry is based on U. S. patent 122,023 (Albert L. Jones, Dec. 19, 1871), covering the "improvement of paper for packing." At first it was chiefly used as a shock-absorbing medium for lining wooden boxes or for wrapping articles. Brief reference is made to the enormous development of the shipping container industry in the United States since the first beginning. As one of the main reasons for the lack of a similar development in Germany, the fact is quoted that goods packed in small containers are still sold at a higher price than those sold in bulk.—C. J. W.

Process and Apparatus for the Manufacture of Corrugated Building Sheets. René Dorn and Martin Willis. U. S. pats. 2,011,439 and 2,011,440 (Aug. 13, 1935).—Corrugated building sheets are formed by delivering from a hopper an asbestos and cement pulp on to a rigid matrix travelling in a horizontal direction and having the contour and dimensions of the finished sheet. The matrix may be passed successively under several hoppers to deposit superposed layers of the asbestos-cement pulp, and the whole is consolidated by pressing in a press having suitably shaped platens. *No. 2,011,439* covers the apparatus and *No. 2,011,440* the process.—A. P.-C.

Making Fiberboard Elastic and Resistant to Water. I. Etingof and E. Kormer. Bumazhnaya Prom. 14, no. 7:54-58 (1935); C. A. 30:861.—Good elasticity and water-resistance were imparted to fiberboard by treating it with petrolatum jelly and calcium, magnesium, aluminum, zinc and manganese naphthenates.—C. J. W.

Stereotype Board. Fritz Hoyer. Wochbl Papierfabr. 66, No. 32: 605-08 (Aug. 10, 1935). Discussion of the necessary properties of stereotype board, raw materials and manufacturing conditions.—J. F. O.

Apparatus for and Process of Making Synthetic Products. George H. Ellis, assignor to The Insulite Co. U. S. pats. 2,030,625 and 2,030,626 (Feb. 11, 1936). —Hard stiff boards are produced by pulping waste fibrous material (tree tops, needles, etc.), forming into a continuous web or sheet, pressing out the surplus water, drying, passing between pairs of heated rolls, cutting into suitable sized sheets and passing through a cooling apparatus.—A. P.-C.

Production of Vulcanized Fiberboard. D. F. Lebedev. Leningrad. Oblastnoi Sovet Nauch. Inzhenerno-Tekh. Obschcestva Tzellyulozno-Bumazhnoi Prom. (Problems of Pulp-Paper Production) No. 4:64-102

(1935); C. A. 30:1228.—A comprehensive discussion of all phases of production of vulcanized fiberboard and recovery of waste products.—C. J. W.

Ornamental Wallboard for Outside Weatherproofing. Leslie S. Odell, assignor to Building Products Ltd. U. S. pats. 2,021,577 to 2,021,579 (Nov. 19, 1935).—The three patents relate to various features of generally similar products, comprising wallboard having a covering of waterproof impregnated and coated felt surfaced with differently colored granular material to similate the appearance of brick or stone. The top and bottom edges of each section are made so as to produce in effect a waterproof tongue-and-groove joint. The side edges may be similarly arranged.—A. P.-C.

Process for the Production of Water-Proof Board Which May Be Painted. K. T. Ohlsson, Stockholm. Swed. pat. 83,410 (May 27, 1933). The board is first drenched with the water-proofing material; for example the by-product from the manufacture of sulphate pulp, the raw or purified floating rosin.—J. F. O.

Machinery

The Evolution of the Technology of Electrons and its Importance for the Paper Industry. Rudolf Mehlo. Papierfabr. 33, No. 34: 281-84 (Aug. 25, 1935). The theory, construction and the applications of electronic devices for the paper industry are discussed in detail—J. F. O.

Paper Made from Two Webs of Stock. H. Postl. Wochbl. Papierfabr. 66, No. 5: 80-81 (Feb. 2, 1935). Dates and a short description of old paper machines making paper from two webs of stock; some were in operation as early as 1873.—J. F. O.

Recent Improvements for the Fourdrinier. Karl Bachman. Papierfabr. 23, No. 44: 361-365 (Nov. 3, 1935). The following are described; a new Voith stock consistency regulator through which the entire amount of stock flows; Voith inlet with means of regulating the head to meet changes in wire speed; a shake designed to give up to 800 double strokes per minute; a planer for suction box covers which is fixed so that the surface may be planned without removing the suction box from the frame; suction roll and press and means for changing the wire.—J. F. O.

Can the Paper Machine Be Still Improved? Wochbl. Papierfabr. 66, No. 46: 869-71 (Nov. 16, 1935). Further comment and ideas on the original article appearing in number 34 of Wochbl Papier, 66, page 644.—J. F. O.

Cylinder Machine Observations and Experiences. C. Url. Wochbl. Papierfabr. 66, No. 32: 608-09 (Aug. 10, 1935). Describes instances of stock losses through the collars and a method for the prevention of same.—J. F. O.

The Improvements in the Construction of Paper Machines. Wintermeyer. Wochbl. Papierfabr. 66, No. 43: 806-09; No. 44: 829-31 (Oct. 26, Nov. 2, 1935). The improvements described are: stock inlets, stock ponds, shake devices, suction couch and roll, steam head for dryers, coupling for winders, gear drives, mixing vat with centrifugal pump, and smoothing cylinder.—J. F. O.

Device for Moistening Moving Webs of Paper. Jagenberg Werke Akt. Ges., Dusseldorf. Ger. pat. 616,773 (Oct. 27, 1932). The invention consists of a device for regulating the flow of water to the moistening brush.—J. F. O.

Process for the Manufacture of Paper, Board, Carton and Similar Materials and for the Purification and Recovery of Fibers from White Water. Karl W. Volle, Ettlingen, Baden. Ger. pat. 616,211 (Aug. 9, 1932).—J. F. O.

Device for the Coating of Adhesives and Impregnating Materials, Paraffin and Similar Substances, with the Use of Two Rolls. Maschinenfabrik Laube Kurt, Dresden. Ger. pat. 616,815 (March 23, 1934).—J. F. O.

Device for the Production of Webs of Paper and Similar Materials with Longitudinal Corrugations. Jacob Moll, Lucka. Ger. pat. 613,146. The device consists of several form rolls with increasing depth to the corrugations, the rolls following one another.—J. F. O.

Device for Moistening Moving Webs of Stock; Such as Paper. Karl Krott, Rheydt. Ger. pat. 613,213 (April 19, 1932).—J. F. O.

Scrapper Device for Evaporators. F. Soltau, Hamburg. Ger. pat. 612,866.—J. F. O.

Device for the Lateral Guiding of the Course of a Web of Paper. Jagenberg Werke Akt. Ges., Dusseldorf. Ger. pat. 605,660 (July 28, 1933).—J. F. O.

Indicator for Paper Machines. Ambrose Idail. U.S. pat. 2,020,061 (Nov. 5, 1935).—A finger resting on an upper press roll of the paper machine is connected through a system of amplifying levers to a suitable pointer, so that a variation in the weight of the paper, resulting in a displacement of the roll, will be revealed by the displacement of the pointer.—A. P.-C.

Apparatus for and Method of Making Paper. Philip J. Reimer. U. S. pat. 2,028,952 (Jan. 28, 1936).—A combination drain and float box device is mounted under the fourdrinier wire close to the breast roll. It consists essentially in a box, divided into a suitable number of compartments extending transversely of the machine, each compartment being open at the top and provided at the bottom with means for feeding liquid at a regulated rate. By feeding water to the box at a suitable rate, formation of the sheet may be controlled as desired; and by supplying a suspension of filler, the latter may be incorporated into the sheet through the wire, and two-sidedness eliminated.—A. P.-C.

Stock Inlet Control for Paper Machines. Richard T. Lang, assignor to American Voith Contact Co., Inc. U. S. pat. 2,028,673 (Jan. 21, 1936).—The upper portion or lip of the stock inlet is provided with an adjusting board which extends over the whole width of the box and is connected between two flexible parts, one of which is connected with the inlet structure and the other of which is supported from the adjusting board itself. The parts are adjustable in the direction of their width and relative to the adjusting board.—A. P.-C.

Paper Making Machine. Nicholas J. Niks. U.S. pat. 2,027,611 (Jan. 14, 1936).—The stock box is constructed in such a manner that the breast roll projects into one corner of the box and forms part thereof.—A. P.-C.

Improvement to Paper Machines. W. H. Millspaugh. Belg. pat. 407,835 (March 30, 1935).—The invention provides specially shaped and mounted agitators in the head box of the Millspaugh vacuum-forming paper machine.—A. P.-C.

Felting of Paper Pulp Fibers on the Wet Part of Paper and Board Machines. S. P. H. E. Holgersson and W. A. E. Tibell. Brit. pat. 437,241 (April 6, 1935).—Paper stock flowing on the fourdrinier wire is vibrated at a frequency of 4000 to 6000 vibrations per minute.—A. P.-C.

Paper Machine. William H. Millsbaugh. Fr. pat. 785,436 (Feb. 8, 1935).—In a sheet of paper formed directly on an endless wire passing around a suction roll that is in contact with stuff in the head box, agitators (preferably consisting of parallel blades that are reciprocated transversely of the length of the suction roll) are provided in the stock close to the roll, so as to deflect the

fibers transversely of the direction of travel of the wire and thus produce a sheet having an increased transverse strength.—A. P.-C.

Rebuilt Fourdrinier Provides Removable Table Roll Section With Pitch and Shake Control While Running. Anon. PAPER TRADE 101, No. 18: 38, 40 (Oct. 31, 1935). —A brief description of the removable table roll section incorporated into the design of a shaking fourdrinier; rebuilt for a 102-inch paper machine at the Mont Rolland, Que., mill of Rolland Paper Co.—A. P.-C.

Cylinder Paper Machine. Herman L. Kutter, assignor to The Black-Clawson Co. Brit. pat. 428,114 (May 7, 1935).—Pulp flows to the forming cylinder from an inlet chamber coextensive with a dam which has a top surface of substantial width and which is free from obstruction to flow of pulp thereover.—A. P.-C.

Cylinder Paper Machine. St. Anne's Board Mill Co. Ltd., Reginald J. Thomas and Thomas H. Matheson. Brit. pat. 428,592 (May 15, 1935).—In a machine for making paper, board, roofing felt, linoleum, etc., from pulp in a vat in which rotates a perforated cylinder on which a fibrous web is formed, a labyrinth packing between the cylinder and the vat is fed with water at a pressure or head above that of the pulp in the vat.—A. P.-C.

Control for Jordan Engine. Tandy A. Bryson. U.S. pat. 2,024,424 (Dec. 17, 1935).—The machine is controlled by a differential mechanism, one moving element of which is controlled by the power motor which drives the machine and the other element of which is operated by a control motor having a substantially constant speed. The control motor is adjusted, by means of a rheostat, to operate at the speed of the power motor when the latter is handling material having the desired characteristics and has the effect of adjusting the torque-speed characteristic of the control motor to that of the power motor. An artificial load is placed on the control motor which imposes upon it a torque-speed demand sufficiently similar to that on the power motor so that the two motors will respond substantially equally to voltage variations.—A. P.-C.

Machine for Refining Paper Stock and Pulp. Walter H. Hermann and Ludwig H. Wessel, assignors to The Hermann Manufacturing Co. U. S. pat. 2,027,041 (Jan. 7, 1936).—In a jordan plug liner projections are formed on the side surfaces of the knives so that when the spacer blocks are forced between the knives grooves are formed in the blocks, which help to maintain the blocks in position.—A. P.-C.

Process of Fitting Jordan Shell Linings. Harold D. Stuck, assignor to John W. Bolton & Sons, Inc. U. S. pat. 2,029,123 (Jan. 28, 1936).—A jordan shell lining is assembled in the large end of truncated cone shaped mold or form, and by the end of a plunger or other suitable device, the whole assembly is forced down into the smaller end of the mold.—A. P.-C.

Arrangement for Jordans. A/S Thunes Mekaniska Vaerksted, Oslo. Nor. pat. 55,353 (Dec. 10, 1932).—J. F. O.

Double Grippers for Round Wood and Similar Materials. Zellstofffabrik Waldhof, Mannheim. Finn. pat. 16,398 (May 7, 1934).—J. F. O.

Bark Removing Machine. Hugh B. Camden and Robert S. Burruss. U. S. pat. 2,025,337 (Dec. 24, 1935). The log is fed into a longitudinal way or trough and is positively driven through and held in the trough by means of feed and guide rolls mounted diagonally above and below. The bark is removed by means of endless chain-like travelling carriers on which are mounted diagonally arranged blades. The carriers are driven in a direction at right angles to the length of the log and are mounted so that they exert an adjustable pressure against the log. Log turning retarders are provided to prevent the log from turning too rapidly, so as to ensure thorough bark removal.—A. P.-C.

Log Scrubbing Machine. Charles H. Burr, assignor to Great Northern Paper Co. U. S. pat. 2,023,163 (Dec. 3, 1935).—In the Whitcomb system of grinding (U. S. pat. 1,570,013, of May 6, 1930) single-charge magazine grinders are arranged in spaced parallel rows on each side of a trough that is somewhat wider than the length of the logs. The present invention provides one or more rotating brushes, mounted so as to rise and fall freely, which scrub the logs and rotate them and remove adhering dirt or bark particles as the logs are floated to the grinders.—A. P.-C.

Plain Bearings and Roller Bearings. N. Wunderlich. Papierfabr. 33, No. 34: 273-77 (Aug. 18, 1935). The importance of bearings in the cost of the manufacture of paper.—J. F. O.

Progress in the Design of Calender Bearings. E. Falz. Wochbl. Papierfabr. 66, No. 36: 678-79 (Sept. 7, 1935). The Wulfel-Falz calender bearings are described with the aid of photographs, and its operation shown by means of curves of power consumption at various speeds with the above bearing in comparison with other calender bearings.—J. F. O.

Progress in the Design of Calender Bearings. W. Wamser. Wochbl. Papierfabr. 66, No. 40: 750-51 (Oct. 5, 1935). Concerning a previous article of the same title in which the author takes exception to certain statements. —J. F. O.

Apparatus for the Continuous Treatment of Fibrous Material. Luke H. Sperry, assignor to Hercules Powder Co. U. S. pat. 2,028,419 (Jan. 21, 1936).—The invention provides an improved rotary valve for discharging material treated in T. W. Bacchus continuous cooking apparatus (U. S. pat. 1,856,453). The valve consists of a cylindrical motor-driven rotor provided with straight longitudinal vanes or blades making a close fit with the casing surrounding the rotor.—A. P.-C.

Arrangement for the Decomposition of Wood and Other Fiberous Materials Containing Cellulose. Metallgesellschaft Akt. Ges., Frankfurt a.M. Ger. pat. 615,106 (Dec. 10, 1933). Addition to Ger. pat. 611,266. Method for connecting digesters and using the liquor from one digester in another.—J. F. O.

Forced Circulation in Pulping Digesters. S. A. Fotiev. Bumazhnaya Prom. 14, no. 10:7-21 (1935); C. A. 30:857. —A discussion of various forms of forced circulation and types of digesters used in the sulphite process.—C. J. W.

Method of and Apparatus for Charging Digesters. Sjune Svensson. U. S. pat. 2,029,086 (Jan. 28, 1936).—This is an improvement on U. S. pat. 1,539,147. The chips are packed in the digester by means of suitably arranged steam nozzles; and when the pressure in the digester becomes sufficiently high the excess steam from the nozzles rises up through the oncoming chips, thus preventing the air accompanying the chips from entering the digester and at the same time effecting a preliminary steaming of the chips—A. P.-C.

Metal Digester Having a Corrosion Resistant Metal Lining. Paul B. Lacy, Edwin F. Libby and Ralph V. Metz, assignors to Industrial Chemical Sales Co., Inc. U. S. pat. 2,022,378 (Nov. 26, 1935).—Digesters used for pulping by the monosulphite process are spray-coated with one or more of the following metals: cadmium, Monel, stainless steel, tin, lead or bronzes, preferably cadmium. The process is also applicable to digesters used in the bisulphite pulping process.—A. P.-C.

Paper Pulp and Method of Making the Same. Sidney D. Wells and Gerald D. Muggleton, assignors to Lewis

L. Alsted. U. S. pat. 2,018,937 (Oct. 29, 1935).—This is an improvement on Wells' U. S. pats. 1,654,624 of Jan. 3, 1928, and 1,769,811, of July 1, 1930, and provides for using a rod mill as a continuous digester, the raw cellulosic material being treated with a suitable cooking liquor at high temperature directly in the rod mill—A. P.-C.

Keeping the Reversing Press Felt Clean. J. Mayolas. Mon. Papeterie Belge 15: 687-691 (Nov., 1935).—The felt can be maintained clean during its useful life, without having to remove it from the machine for washing, by passing the outer face of the felt over a suction box having a suction area 12 to 15 cm. wide. The felt should preferably be wetted moderately.—A. P.-C.

Paper Machine Felts. T. Milnes and Ayres Ltd. Belg. pat. 409,173 (May 31, 1935).—Each end of the felt is folded back, and slots are cut in the folded over portions so that when the two ends are brought together the looped portions interfit and are joined by slipping a suitable bar or rod through the loops.—A. P.-C.

Hammer Mills for Paper Pulp. William T. Doyle assignor to Sturtevant Mill Co. Brit. pat. 432,115 (July 22, 1935).—A stream of concentrated cellulosic pulp is fed to a hammer mill wherein it is subjected to swift impacting, disintegrated, hydrated and mixed with dilution water which is fed as a separate stream to the mill.—A. P.-C.

Paper Machine Press. Antoine Valentin. U.S. pat. 2,024,616 (Dec. 17, 1935).—The invention consists essentially in the use of one or more three-roll presses. One or more felts are used to conduct the moist sheet through the two nips, and are preferably so arranged as to separate from the paper as soon as it has gone through the nips of the press. Between the two nips the paper is in contact with the bare surface of one of the rolls, and it is not stripped therefrom until after it has passed through the second nip. Means are provided back of each nip to remove the expressed water.—A. P.-C.

Notes on Centrifugal Pumps in the Paper Industry. Anon. Papeterie 57: 1069 (Dec. 10, 1935).—A brief discussion of the qualities required of centrifugal pumps for paper mill service.—A.P.-C.

Pulp Refiner. F. Lord. Belg. pat. 409,584, (June 29, 1935).—Disks mounted on a vertical rotating shaft are provided on their lower faces with blades coacting with corresponding blades on the upper faces of fixed disks. The pulp is fed under pressure through the apparatus from the bottom upwards. The shaft is adjustable vertically.—A. P.-C.

Suction Roll for Paper and Cellulose Machines. Martin Kutter, Hirschberg, & Carl Krasselt. Ger. pat. 616,210 (June 2, 1933).—J. F. O.

Process of Making Rubber-Covered Suction Rolls. Dominion Engineering Works Ltd. Fr. pat. 791,045.—In covering or re-covering rubber-covered suction-roll shells, after applying the rubber and the vulcanizing tape in the usual manner, headed pins of sufficient length to pass completely through the covering are driven through the holes in the metal shell, the pins being inserted from inside the shell. After vulcanizing the pins are readily knocked inwards.—A. P.-C.

Wire Faced Roll for Paper Machines. Einar I. Flateboe. U. S. pat. 2,025,445 (Dec. 24, 1935).—The invention provides interfitting grooves in the longitudinal rods and the rims of the spiders of a dandy roll, so as to insure rigidity of the roll.—A. P.-C.

Corrugated Rubber Rolls in the Pulp Industry. v. Lassberg. Zellstoff u. Papier, 15, No. 10; 397-98 (Oct., 1935).— Applications of the corrugated rubber roll in the pulp industry for the economic removal of water are given.—J. F. O.

Finishing Room Operating Suggestions. John Horney. Paper Industry 17:648 (Dec., 1935).—Brief practical hints on how to obtain better rolls and how to facilitate the work of sorters.—A. P.-C.

Cleaning of Suction Rolls. H. E. Ekengren. Finnish Paper and Timber J. 17, No. 22:1002-1104, 1006 (Nov. 30, 1935).—The author describes the construction and use of a device for cleaning suction rolls, consisting of a spray of water at high pressure. He also discusses the question of frequency of cleaning the rolls and its effect on the amount of water removed by the rolls and on the steam consumed in subsequent drying.—C. J. W.

Increased Save All Recovery with Chemical Control. A. R. Bechtel. Paper Trade J. 102, No. 1: 29-33 (Jan. 2, 1936).—pH measurements showed that, by adjustment of the pH with alkalies, the content of the supernatant liquid after sedimentation of white water could be reduced from 5.39 to 0.76 lb. of insoluble solids per 1,000 gal. The amounts of alkali necessary to adjust the pH to its optimum value (which may vary with different white waters) are small, 0.16 to 1.0 lb. of technical hydrated lime per 100 gallons of white water.—A. P.-C.

Centrifugal Screen. Egon Strobach. Wochbl. Papier fabr. 66, No. 45: 852-54 (Nov. 9, 1935).—A short history of centrifugal screening up to the present development of the "Erkensator," invented by two Dutch paper makers in 1922. The operation of the "Erkensator" is described; the revolutions per minute is 600. The author disputes the often mentioned statement that the "Erkensator" cannot be operated with loaded papers by claiming that there are mills making paper with 25 to 30 per cent ash using the "Erkensator." "Erkensators" are now being made for refining clays.—J. F. O.

Drive for Flat-Screen Diaphragms. Rudolf Haas, assignor of one-half to Zellstofffabrik Waldhof. U. S. pat. 2,014,326 (Sept. 10, 1935).—In flat screens having more than two pairs of diaphragm-oscillating plates disposed in a line longitudinally of the machine, double oscillating levers are connected to each successive pair of plates by means of resilient intermediate members; and the levers are oscillated by means of a common cord or belt. Means are provided for maintaining the latter under tension.—A. P.-C.

Pulp Screen. "Miag" Muhlenbau und Industrie Aktiengesellschaft. Fr. pat. 787,825.—In a vertical centrifugal screen, the devices which cause the tailings to travel upwards along the inside of the screen wall are shaped and constructed so as to be easily adjustable towards or away from the wall of the screen or vertically upwards or downwards.—A. P.-C.

Pulp Shredder. E. & M. Lamort Fils. Belg. pat. 408,858 (May 31, 1935).—The machine consists essentially of a series of parallel shafts each provided with triangular-shaped, helically arranged prongs or teeth.—A. P.-C.

Pulp Shredder. John J. Warren. U. S. pat. 2,023,455 (Dec. 10, 1935).—Means are provided for positively gripping the entire length of each sheet of pulp and feeding it to the shredder blades at a uniform rate so that the last few inches are subjected to the same shredding action as the first. This is effected by eliminating the fixed bed plate, moving the shredder roll towards the feed rolls so that the lower roll becomes in effect a moving bed plate, and so constructing the feed rolls that the pulp in passing between them is pressed against projections on the lower roll and the entire lap (including the tail) is positively fed to the shredder blades.—A. P.-C.

Paper Machine Slice. Maurice O. Neilson. U.S. pat. 2,022,298 (Nov. 26, 1935).—A paper machine slice has a thin, flexible, rubber lip, built in over-lapping sections that are individually adjustable vertically. The outer sections are flat across the bottom and the inner one has

a tapered edge. Laterally adjustable deckles are provided the inner ends of which engage the slice lip.—A. P.-C.

Stock Consistency Regulator. Stephen A. Staege, assignor to Westinghouse Electric and Manufacturing Co. U. S. pat. 2,023,106 (Dec. 3, 1935).—A suitable sampling device is provided at a convenient point of the pulp line. In the sampling tube is a propeller or vanes, driven by a synchronous motor through reducing gearing at a speed sufficiently slow to prevent the material being thrown away from the propeller by centrifugal force. The torque on the motor depends on the consistency of the stock. Variations in the torque due to changes in the consistency are utilized (*e.g.*, through the use of a pair of hot cathode electric discharge devices and a magneto alternator, or through an impulse generator and a pair of Ignitron tubes, or through Ignitron tubes controlled by a grid) to vary the field excitation, and hence the speed, of a d.-c. motor driving a centrifugal pump supplying the dilution water.—A. P.-C.

Stock Inlet for Paper and Board Machines. Maschinenfabrik A.G. vorm. Wagner & Co., Herischdorf. Ger. pat. 616,209 (July 15, 1933).—Means of agitating the stock before the apron.—J. F. O.

Stock Control Apparatus. Geo. W. Dodge. Paper Trade J. 101, No. 18: 70-71 (Oct. 31, 1935).—A brief description of the Precision Regulator and the Precision Regulating and Metering Device, manufactured by Paper and Industrial Appliances, Inc., New York.—A. P.-C.

Presence of Lumps in Paper. D. C. M. Papyro. Papeterie 57:837 (Sept. 25, 1935).—Presence of fiber lumps in the best prepared of fine papers is due to agglomeration and adhesion of fibers due to agitation in the chests or to rolling together of the fibers by friction when passing through pipes. It is suggested that the trouble can be appreciably reduced by diminishing as far as possible unnecessary agitation and formation of eddies, and more particularly by dropping the beaters singly into the chests, or at most two at a time.—A. P.C.

Weight Regulator. William Barrett. U.S. pat. 2,014,243 (Sept. 10, 1935).—The regulator comprises a reservoir having a main discharge opening with an adjustable gate, which are shaped in such a manner that for all adjustments of the gate the actual opening remains square. A small auxiliary opening is provided with a nozzle, outside and opposite which is mounted a target suitably connected to the gate-controlling mechanism. Changes in the consistency of the stock produces a change in the force with which it strikes the target, and this in turn actuates the gate-controlling mechanism in such a manner as to maintain constant the amount of paper-making material delivered through the main opening.—A. P.-C.

The Theory of Pulp Washers. W. B. Van Arsdel. Paper Industry 17:725-728 (Jan., 1936).—It is suggested that two distinct principles may be recognized in the apparatus used for washing pulp, *viz.*, washing by displacement and washing by successive dilution and thickening. As a matter of theory it may be doubted whether there is a hard and fast demarcation, and whether the distinction is not mostly a matter of convenience. The present study considers only the "dilution and thickening" method as exemplified by the wet-machine type of washer; certain well known principles are applied to the derivation of formulas for the design of equipment and for the interpretation of experimental tests, but purely engineering aspects of design are not considered.—A. P.-C.

Mechanism for Unwinding Rolls. George W. Swift, Jr., assignor to George W. Swift, Jr., Inc. U. S. pat. 2,027,796 (Jan. 14, 1936).—Paper that is unwound from a mill roll passes successively around a feeding roll and a guide roll and then between corrugating rolls. The feeding roll is mounted so that, should there be any appreciable amount of slack in the web between the mill roll and the corrugating roll, the feeding roll will not engage the web with sufficient friction to draw it from the mill roll. The guide roll is mounted so as to permit of axial tilt, so as to obtain a substantially uniformly distributed stress across the whole width of the web.—A. P.-C.

Winding Machines. James A. Cameron, assignor to Cameron Machine Co. U. S. pat. 2,023,165 (Dec. 3, 1935).—In a two-drum surface winder the rear winding drum and the backing roll of the slitter are positively connected, as by a sprocket chain. The front winding drum may be similarly connected with the riding roll.—A. P.-C.

Paper Ruling Apparatus. William R. Kellett and Charles M. Pearson, assignors to Paper Patents Co. U. S. pat. 2,020,118 (Nov. 5, 1935).—In a machine for winding paper in predetermined lengths on suitable spools, means controlled by the spool and by the length of paper wound on the roll are provided for automatically transferring the web from a full roll to an empty spool.—A. P.-C.

American Methods of Cutting and Winding Paper. R. Louchart. Papier 39:893-903 (Oct., 1935).—A description and comparison of the various methods in use in Canada and the United States at the present time.—A. P.-C.

Paper Winder. Allmanna Svenska Elektriska Aktiebolaget. Fr. pat. 785,404.—In order to maintain a constant tension in the paper as it is being wound, the electric machine driving the winder or the braking device is regulated in such a manner as to develop or absorb, respectively, a constant amount of power. According to the invention this is obtained in a simple manner by means of a special exciting generator feeding the inductor of the driving or braking motor, thus eliminating the use of power regulators with movable contacts.—A. P.-C.

Electron Tube Type Tension Regulator. Stephen A. Staege, assignor to Westinghouse Electric and Manufacturing Co. U. S. pat. 2,024,708 (Dec. 17, 1935).—An electric generator is used as a brake for keeping constant the tension in the paper as it is being wound. The braking generator for the unwinding reel is supplied with power from a variable-voltage generator which also supplies power to the driving motor of the winder. The braking generator is supplied with unidirectional excitation from an a.-c. source through a thermionic rectifier which is controlled by a phase shift circuit or device which, in turn, is controlled in accordance with a load current of the braking generator to subject the material to a substantially constant tension.—A. P.-C.

Winding Reel. Henry L. Hall, assignor to Great Northern Paper Co. U. S. pat. 2,023,681 (Dec. 10, 1935).—This is an improvement on the Pope reel (U. S. pat. 1,248,542 of Dec. 4, 1917) and provides means for adjustably increasing the pressure of the winding roll against the reel drum so as to obtain a tighter wound roll.—A. P.-C.

Wire Cloth Seam and Method of Making the Same. Nelson W. Webb, assignor to Eastwood-Nealley Corp. U. S. pat. 2,030,616 (Feb. 11, 1936).—The last weft wire at each end of the cloth is replaced with a solder-coated wire, the warp wires are cut so that the side of the solder-coated wire projects beyond their cut ends (which extend beyond the axis of the solder-coated wire), and heat is applied to solder the warps to the solder-coated wires and the latter side by side to each other.—A. P.-C.

IMPORTS OF PAPER AND PAPER STOCK

NEW YORK, BOSTON, PHILADELPHIA AND OTHER PORTS

NEW YORK IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

CIGARETTE PAPER

Champagne Paper Corp., *Champlain,* Havre, 510 cs.

WALL PAPER

Titan Shipping Co., *Bergersfjord,* Hagastrom, 10 bxs.; S. K. Lonegren, *Kungsholm,* Gothenburg, 11 bxs.; F. J. Emmerich, *Scythia,* Liverpool, 2 cs.; F. J. Emmerich, *Europa,* Bremen, 1 cs., 1 ble.

NEWSPRINT

Parsons & Whittemore, *Karpfanger,* Sundsvall, 210 rolls; ———, *T. Fagelund,* Port Alfred, 1,384 rolls; ———, *Bergensfjord,* Skien, 116 rolls; News Syndicate Co. Inc., *G. T. D.,* Gatineau, 304 rolls; News Syndicate Co. Inc., *International 1,* Gatineau, 307 rolls; Perkins Goodwin & Co., *Berlin,* Bremen, 250 rolls; Jay Madden Corp., *Berlin,* Bremen, 341 rolls; Lunham & Reeve, Inc., *Minnequa,* Kotka, 220 rolls; Perkins Goodwin & Co., *Stuttgart,* Bremen, 296 rolls; Jay Madden Corp., *Stuttgart,* Bremen, 131 rolls; Jay Madden Corp., *Pr. Harding,* Hamburg, 243 rolls.

PRINTING PAPER

E. Dietzgen & Co., *New York,* Hamburg, 1 cs.; ———, *Bergensfjord,* Skien, 15 bls.

WRAPPING PAPER

T. Barrett & Son, *Kungsholm,* Gothenburg, 64 bls.; Majestic Paper & Twine Co., Inc., *Kungsholm,* Gothenburg, 20 bls.; Guaranty Trust Co., *Kungsholm,* Gothenburg, 553 rolls.

FILTER COMPOUND

H. Reifenberg, *New York,* Hamburg, 40 cs., 20 bls.

FILTER PAPER

E. Fougera & Co., *Queen Mary,* Southampton, 33 cs.; H. Reeve Angel & Co. Inc., *Queen Mary,* Southampton, 8 cs.; H. Reeve Angel & Co. Inc., *American Merchant,* London, 15 cs.; E. H. Sargent & Co., *Kungsholm,* Gothenburg, 8 cs.; A. Giese & Son, *Cypria,* Marseilles, 56 bls.

DRAWING PAPER

H. Reeve Angel & Co. Inc., *American Merchant,* London, 5 cs.

SURFACE COATED PAPER

Globe Shipping Co., *Stuttgart,* Bremen, 33 crates; Globe Shipping Co., *Europa,* Bremen, 14 crates.

BASIC PAPER

Globe Shipping Co., *Berlin,* Bremen, 34 cs., 76 crates.

PHOTO PAPER

J. J. Gavin, *Queen Mary,* Southampton, 6 cs.

DECALCOMANIA PAPER

B. F. Drakenfeld & Co., *Scythia,* Liverpool, 17 cs. (duplex).

DECALCOMANIAS

Sellers Transportation Co., *Europa,* Bremen, 18 cs.

TRANSFER PAPER

Phoenix Shipping Co., *New York,* Hamburg, 3 cs.

COLORED PAPER

J. W. Hampton Jr. & Co., *Gerolstein,* Antwerp, 2 cs.; International F'd'g. Co., *New York,* Hamburg, 2 cs.

TISSUE PAPER

W. J. Byrnes, *Queen Mary,* Southampton, 1 cs.; B. F. Drakenfeld & Co., *Scythia,* Liverpool, 6 cs.

IMITATION IVORY BOARDS

R. Wilson Paper Corp., *Spaarndam,* Rotterdam, 6 cs.

PAPER TUBES

———, *Europa,* Bremen, 66 ctn.; ———, *New York,* Hamburg, 82 pkgs.

CARD BOARD

International F'd'g. Co., *Statendam,* Rotterdam, 4 cs.; Dingelstedt & Co., *New York,* Hamburg, 32 cs.

BOARDS

Miller Paper Co., *Kungsholm,* Gothenburg, 25 bls.

STRAW BOARD

Balfour Guthrie & Co., *Spaarndam,* Rotterdam, 747 pkgs.

MISCELLANEOUS PAPER

The Borregaard Co. Inc., *Kungsholm,* Gothenburg, 814 rolls, 204 pkgs.; ———, *Kungsholm,* Gothenburg, 116 rolls; F. L. Kramer & Co., *Kungsholm,* Gothenburg, 60 rolls; Coty Processing Co., *Champlain,* Havre, 2 cs.; Rohner Gehrig & Co., *Champlain,* Havre, 14 cs.; National City Bank, *Kwansai Maru,* Yokohama, 3 cs.; Japan Paper Co., *Peter Maersk,* Kobe, 101 cs.; Keuffel & Esser Co., *New York,* Hamburg, 73 rolls.

RAGS, BAGGINGS, ETC.

———, *Exchester,* Algiers, 296 bls. rags; Royal Manfg. Co., *H. Jaspar,* Antwerp, 23 bls. cotton waste; ———, *H. Jaspar,* Antwerp, 53 bls. bagging; Chase National Bank, *California,* Glasgow, 91 bls. bagging; Manufacturers Trust Co., *Kungsholm,* Gothenburg, 12 bls. rags; Castle & Overton, Inc., *Schodack,* Havre, 9 bls. rags; J. Eisenberg & Co., *Schodack,* Dunkirk, 8 bls. rags; Royal Manfg. Co., *Schodack,* Dunkirk, 42 bls. cotton waste; W. Steck & Co., *Schodack,* Dunkirk, 47 bls. linen waste; R. Blank, *Black Osprey,* Rotterdam, 180 bls. rags; S. Shapiro & Son, *Pr. Harrison,* Bombay, 100 bls. cotton waste; American Express Co., *American Shipper,* Manchester, 8 bls. rags; Royal Manfg. Co., *American Shipper,* Manchester, 65 bls. cotton waste; M. Snedeker Corp., *American Shipper,* Belfast, 130 bls. paper stock; Castle & Overton, Inc., *Paraguayo,* Buenos Ayres, 270 bls. dark cottons, 29 bls. rags; Castle & Overton, Inc., *Paraguayo,* Buenos Ayres, 168 bls. bagging; E. J. Keller Co. Inc., *Spaarndam,* ———, 143 bls. rags; R. Blank, *Spaarndam,* Rotterdam, 55 bls. rags; Hicks Costarino Co., *Spaarndam,* Rotterdam, 35 bls. new cuttings; New England Waste Co., *Kano Maru,* Kobe, 200 bls. cotton waste; Buffalo Butt & Felt Corp., *Kano Maru,* Kobe, 312 bls. cotton waste; E. J. Keller Co. Inc., *Kano Maru,* ———, 200 bls. rags; Amtorg Trading Corp., F. *Engels,* Leningrad, 1,280 bls. flax waste, 682 bls. rags;

Bank of the Manhattan Co., *F. Engels*, Leningrad, 680 bls. waste, 371 bls. rags; E. J. Keller Co. Inc., *Gerolstein*, ———, 116 bls. bagging, 70 bls. rags; ———, *Kwansai Maru*, Shanghai, 200 bls. cotton waste; ———, *Kwansai Maru*, Osaka, 183 bls. rags; ———, *Exminster*, Casablanca, 246 bls. rags; ———, *Pr. Harding*, Hamburg, 190 bls. rags; E. J. Keller Co. Inc., *Westernland*, ———, 106 bls. bagging E. J. Keller Co. Inc., *Tai Ping*, ———, 19 bls. paper stock; E. J. Keller Co. Inc., *Manhattan*, ———, 86 bls. paper stock; E. J. Keller Co. Inc., *Black Tern*, ———, 137 bls. paper stock.

GLUE STOCK, ETC.

———, *Berlin*, Bremen, 300 bags hide glue; ———, *New York*, Hamburg, 200 bags bone glue.

OLD ROPE

Manufacturers Trust Co., *American Merchant*, London, 56 coils; W. Steck & Co., *Spaarndam*, Rotterdam, 111 coils; E. J. Keller Co. Inc., *Tai Ping*, ———, 23 coils.

CASEIN

Balfour Guthrie & Co., *Nordkap*, Buenos Ayres, 833 bags, 49,980 kilos; Atterbury Bros., Inc., *Nordkap*, Buenos Ayres, 833 bags, 49,980 kilos; T. M. Duche & Sons, *Western World*, Buenos Ayres, 1,667 bags; ———, *Western World*, Buenos, Ayres, 1,001 bags; ———, *New York*, Hamburg, 70 bags.

WOOD PULP

The Borregaard Co. Inc., *Bergensfjord*, Sarpsborg, 504 bls. sulphate; Perkins Goodwin & Co., *Bergensfjord*, Drammen, 250 bls. sulphite; E. M. Sergeant Pulp & Chemical Co., *Bergensfjord*, Oslo, 300 bls. chemical pulp; Bulkley Dunton & Co., *Karpfanger*, ———, 2,125 bls. wood pulp; ———, *Karpfanger*, Stugsund, 1,000 bls. sulphate, 200 tons; ———, *Karpfanger*, Hernosand, 3,620 bls. sulphite, 900 bls. sulphate; Johaneson Wales & Sparre, Inc., *Karpfanger*, Sundsvall, 2,925 bls. sulphite, 525 tons; Johaneson Wales & Sparre, Inc., *Kungsholm*, Gothenburg, 100 bls. sulphate; D. M. Hicks, Inc., *Kungsholm*, Gothenburg, 300 bls. sulphite; Lagerloef Trading Co., *Minnequa*, Helsingfors, 342 bls. sulphite, 57 tons; Lagerloef Trading Co., *Minnequa*, Wiborg, 1,797 bls. sulphite, 332 tons; Lagerloef Trading Co., *Minnequa*, Wiborg, 624 bls. sulphate, 104 tons; Lagerloef Trading Co., *Minnequa*, Kotka, 270 bls. sulphate, 54 tons; Bulkley Dunton & Co., *Blankaholm*, ———, 2,725 bls. wood pulp; Stora Kopparberg Corp., *Blankaholm*, Skutskar, 795 bls. dry pulp; Price & Pierce, Ltd., *Blankaholm*, Sandviken, 3,000 bls. unbleached kraft sulphate; J. Andersen & Co., *Blankaholm*, Gothenburg, 250 bls. sulphate; ———, *Alberta*, Trieste, 1,246 bls. wood pulp; Castle & Overton, Inc., *New York*, Hamburg, 720 bls. wood pulp, 144 tons.

WOOD PULP BOARDS

Fibre Case & Novelty Co., *Kungsholm*, Gothenburg, 38 bls.; H. Fuchs & Son, *Kungsholm*, Gothenburg, 20 crates; Salwen Paper Co., *Kungsholm*, Gothenburg, 9 bls.; Jay Madden Corp., *Minnequa*, Kotka, 90 bls.; ———, *New York*, Hamburg, 130 bls.

ALBANY IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

Perkins Goodwin & Co., *Karpfanger*, Pitea, 6,096 bls. kraft sulphate, 1,016 tons; Perkins Goodwin & Co., *Karpfanger*, Obbola, 525 bls. sulphate, 75 tons; ———, *Karpfanger*, Hernosand, 1,800 bls. sulphite, 1,200 bls. sulphate; Johaneson Wales & Sparre, Inc., *Karpfanger*, Sundsvall, 720 bls. sulphite, 120 tons; Bulkley Dunton & Co., *Karpfanger*, ———, 2,700 bls. sulphite, 450 tons; Lagerloef Trading Co., *Minnequa*, Helsingfors, 630 bls. sulphite, 103 tons; Lagerloef Trading Co., *Minnequa*, Wiborg, 3,784 bls. sulphate, 741 tons; Laberloef Trading Co., *Minnequa*, Kotka, 175 bls. sulphite, 29 tons; Laberloef Trading Co., *Minnequa*, Kotka, 520 bls. mechanical pulp, 104 tons.

NEWARK IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

H. G. Craig Co., *Donpaco*, Donnacona, 319 rolls newsprint; H. G. Craig Co., *Newscarrier*, Donnacona, 343 rolls newsprint; H. G. Craig Co., *Donnacona*, Donnacona, 507 rolls newsprint; H. G. Craig Co., *Donpaco*, Donnacona, 317 rolls newsprint.

PORTLAND IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

Gottesman & Co. Inc., *Dalhem*, Sweden, 6,600 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

E. J. Keller Co. Inc., *Schodack*, ———, 59 bls. rags; ———, *Schodack*, Havre, 100 bls. bagging; ———, *Schodack*, Dunkirk, 134 bls. paper stock; Atkinson Haserick & Co., *Pr. Harrison*, Genoa, 4 cs. paper; ———, *Scythia*, Liverpool, 58 bls. paper stock; Stone & Downer Co., *Scythia*, Liverpool, 9 cs. wrapping paper; G. F. Malcolm, Inc., *Scythia*, Liverpool, 18 cs. tissue paper; ———, *American Merchant*, London, 50 bls. paper stock, 120 bls. rags; M. Snedeker Corp., *American Merchant*, London, 28 bls. rags; Textile Waste Supply Co., *Kano Maru*, Kobe, 75 bls. rags; J. W. Gerry Co. Inc., *Kano Maru*, Yokohama, 2 cs. wall paper; ———, *Kwansai Maru*, Shanghai, 150 bls. cotton waste; ———, *Kwansai Maru*, Osaka, 100 bls. cotton waste.

PHILADELPHIA IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

———, *T. Fagelund*, Port Alfred, 2,156 rolls newsprint; E. J. Keller Co. Inc., *Exchester*, ———, 65 bls. rags; Castle & Overton, Inc., *Schodack*, Havre, 304 bls. rags, 110 bls. new cuttings; F. Weber & Co., *Black Osprey*, Antwerp, 16 cs. drawing paper; ———, *Black Osprey*, Antwerp, 28 bls. wrapping paper; W. F. Sherwood & Son, *Black Osprey*, Antwerp, 77 bls. rags; M. Royal & Co., *Black Osprey*, Antwerp, 167 pkgs. glassine paper; ———, *Black Osprey*, Antwerp, 228 bls. rags; E. J. Keller Co. Inc., *Black Osprey*, ———, 480 bls. rags; Castle & Overton, Inc., *Paraguayo*, Buenos Ayres, 121 bls. old cottons; Castle & Overton, Inc., *Paraguayo*, Buenos Ayres, 66 bls. old garments, 107 bls. old stockings; Castle & Overton, Inc., *Minnequa*, Wiborg, 1,039 bls. wood pulp, 207 tons; Lagerloef Trading Co., *Minnequa*, Kotka, 1,060 bls. sulphite, 212 tons; Lagerloef Trading Co., *Minnequa*, Kotka, 1,560 bls. chemical pulp, 312 tons; J. W. Hampton Jr., & Co., *Minnequa*, Kotka, 398 rolls newsprint; E. J. Keller Co. Inc., *Spaarndam*, ———, 253 bls. rags; ———, *Alberta*, Trieste, 22 bls. rags.

WILMINGTON IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

Lagerloef Trading Co., *Minnequa*, Wiborg, 218 bls. sulphite, 43 tons; Castle & Overton, Inc., *Minnequa*, Wiborg, 2,631 bls. wood pulp, 526 tons; E. J. Keller Co. Inc., *Black Heron*, ———, 229 bls. paper stock.

NORFOLK IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

American Express Co., *Black Osprey*, Antwerp, 10 cs. wrapping paper; N. Y. Trust Co., *Black Osprey*, Rotterdam, 35 bls. bagging; Price & Pierce, Ltd., *Malaren*, ———, 2,600 bls. unbleached sulphite.

NEWPORT NEWS IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

Bulkley Dunton & Co., *Schwanheim*, ———, 1,265 bls. wood pulp; Gottesman & Co. Inc., *Schwanheim*, Sweden, 3,000 bls. wood pulp.

(Continued on page 47)

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, September 16, 1936.

Conditions in the local paper market are favorable. Demand for the various grades of paper is well sustained. Judging by the number of inquiries around, more lively trading is in sight for the coming months. Prices are generally holding to formerly quoted levels, without difficulty.

The statistical position of the newsprint paper market is improving. While total North American production during August amounted to 373,027 tons, compared with 342,443 tons in August last year, stocks at the mills decreased to 87,258 tons at the end of August, compared with 93,867 tons on July 31, according to the News Print Service Bureau.

Steadiness prevails in the fine paper market. Demand for book, cover, bond and ledger papers is holding up well. Tissues are in excellent request for the season. The coarse paper market continues to display strength. Board mill production has been speeded up to take care of the growing consumption.

Mechanical Pulp

The ground wood pulp market is practically unchanged. Manufacturing operations in North America and abroad are proceeding in sufficient volume to take care of current requirements. Accumulations at the pulp mills are not excessive, due to some extent to the long drought recently experienced. Prices are steady.

Chemical Pulp

Sentiment in the chemical pulp market is optimistic. Demand for both domestic and foreign grades is brisk for the time of year. Bleached sulphite and kraft pulps are very firm, with offerings limited. Bleachable grades of unbleached sulphite are in good request. Prices are holding to schedule.

Old Rope and Bagging

The old rope market is showing signs of improvement. Paper mill demand for domestic and imported old manila rope is slightly better. Mixed strings are fairly active. Old rope prices are steadier. The bagging market is stronger. More interest is being shown in scrap and gunny bagging. Prices are firmer.

Rags

Business in the domestic rag market is more active. Demand for new and old cotton rags is improving. No. 1 white shirt cuttings are in good request, both for home and export account. Roofing grades are attracting more interest. No radical price changes have been recorded of late. The imported rag market remains unchanged.

Waste Paper

The paper stock market is gradually becoming more lively. Board mill demand for the lower grades is better and quotations on strictly folded news and No. 1 mixed paper are firmer. The higher grades of waste paper continue steady, especially hard and soft white shavings and white envelope cuttings.

Twine

Trading in the local twine market continues fairly active. Demand for the various varieties is considered satisfactory for the time of year. Inquiries for future needs are fairly numerous, some of which should materialize into good orders. Prices are firmer, especially of hard fiber grades.

IMPORTS OF PAPER AND PAPER STOCK

(Continued from page 46)

BALTIMORE IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

———, *T. Fagelund*, Port Alfred, 2,595 rolls newsprint; Johaneson Wales & Sparre, Inc., *Karpfanger*, Sundsvall, 1,600 bls. sulphite, 350 tons; Johaneson Wales & Sparre, Inc., *Karpfanger*, Sundsvall, 1,200 bls. kraft sulphate, 200 tons; Mead Sales Co. Inc., *Karpfanger*, Sundsvall, 1,500 bls. sulphite, 250 tons; Bulkley Dunton & Co., *Karpfanger*, ———, 4,775 bls. wood pulp, 955 tons; ———, *Karpfanger*, Hernosand, 240 bls. sulphite, 3,000 bls. sulphate; ———, *Karpfanger*, Stugsund, 1,500 bls. dry pulp, 300 tons; ———, *Karpfanger*, Stugsund, 625 bls. sulphite, 125 tons; 3,500 bls. sulphate, 700 tons; American Paper Co. Inc., *Karpfanger*, Sundsvall, 70 rolls newsprint; Congoleum Nairn Co., *Black Osprey*, Antwerp, 80 bls. rags; ———, *Alberta*, Trieste, 1,000 bls. wood pulp; Parsons & Whittemore, Inc., *City of Newport News*, ———, 505 bls. wood pulp; Price & Pierce, Ltd., *Malaren*, ———, 1,200 bls. bleached sulphite; Bulkley Dunton & Co., *Schwanheim*, ———, 3,918 bls. wood pulp; Bulkley Dunton & Co., *Breedyk* ———, 450 bls. wood pulp; Gottesman & Co. Inc., *Schwanheim*, Sweden, 125 bls. wood pulp.

NEW ORLEANS IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

Johaneson Wales & Sparre, Inc., *Karpfanger*, Obbola, 700 bls. sulphate, 100 tons; ———, *Karpfanger*, Hernosand, 360 bls. sulphite, 60 tons; Johaneson Wales & Sparre, Inc., *Karpfanger*, Sundsvall, 240 bls. sulphite, 40 tons; Times Publishing Co., *Karpfanger*, Sundsvall, 36 rolls newsprint; National Pulp & Paper Co. Inc., *Karpfanger*, Sundsvall, 364 rolls newsprint; E. C. Palmer & Co. Ltd., *Karpfanger*, Sundsvall, 39 rolls newsprint.

DETROIT IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

Price & Pierce, Ltd., *Honnor*, ———, 500 bls. bleached sulphite.

LOS ANGELES IMPORTS

WEEK ENDING SEPTEMBER 12, 1936

———, *Kwansai Maru*, Shanghai, 245 bls. rags; New Fashion Importing Co. Inc., *Kwansai Maru*, Yokohama, 6 cs. paper; California Mill Supply Co., *Peter Maersk*, Yokohama, 5 bls. rags; Frazar & Co., *Peter Maersk*, Yokohama, 150 bls. rags; ———, *Peter Maersk*, Kobe, 77 bls. rags.

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, September 16, 1936.

BLANC FIXE.—The blanc fixe market continues fairly active. Prices are generally holding to formerly quoted levels. The pulp is quoted at $42.50 to $45 per ton, in bulk; while the powder is selling at 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—Business in the bleaching powder market is normal for the season. Contract shipments are moving regularly. Prices continue steady and unchanged. Bleaching powder is quoted at $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues firm. Domestic standard ground is quoted at 17½ and finely ground at 18 cents; while French and Argentine standard ground are selling at 17 and finely ground at 17½ cents per pound, in bags, car lot quantities.

CAUSTIC SODA.—Paper mill demand for caustic soda is well sustained. Prices are holding to schedule. Solid caustic soda is quoted at $2.55 to $2.60; while the flake and ground are selling at $2.95 to $3 per 100 pounds, in drums, at works.

CHINA CLAY.—The china clay market is displaying strength. Shipments against contract are moving in good volume. Imported china clay is still quoted at $12.50 to $21 per ton, ship side; while domestic paper making clay is selling at $6.50 to $12 per ton, at mine.

CHLORINE.—Steadiness prevails in the chlorine market. Demand from the paper mills is brisk. Contract shipments are moving freely. Prices are holding to formerly quoted levels. Chlorine is selling at $2.15 to $2.55 per 100 pounds, in tank cars, at works.

ROSIN.—The rosin market is slightly firmer. Paper making gum rosin is quoted at $6.05 and wood rosin at $6.05 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $3.06½ per 100 pounds, in tank cars, at works.

SALT CAKE.—Conditions in the salt cake market are favorable. The contract movement is well up to average. Salt cake is quoted at $12 to $13; chrome salt cake at $11 to $12 per ton, at works; while imported salt cake is selling at $12 to $13 per ton, ship side.

SODA ASH.—The soda ash market is exhibiting a strong undertone. Supplies are moving into consumption freely. Prices are steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are as follows: in bulk, $1.05; in bags, $1.20; and in barrels, $1.50.

STARCH.—No radical changes transpired in the starch market, which is still affected by the high prices of raw materials. Prices are steady. Special paper making starch is quoted at $4 per 100 pounds, in bags; and at $4.27 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Demand for sulphate of alumina is holding up well. The contract movement is normal for the time of year. Prices are firm. Commercial grades are quoted at $1.35 to $1.60; and iron free at $2 to $2.25 per 100 pounds, in bags, at works.

SULPHUR.—The sulphur market continues steady. Yearly contracts are quoted at $18 per ton, in bulk, on orders of 1,000 tons, or over, and $20 on smaller quantities. On spot and near by car loads, the quotation is $21 per ton. All quotations are in car lots, at works.

TALC.—Although the talc market is only moderately active the statistical position of the industry is fairly sound. Domestic talc is still quoted at $16 to $18 per ton, at eastern mines; while imported talc is selling at $23 to $30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers—Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—Delivered Zone 1

	Bonds		Ledgers
No. 1 Sulphite	7.50	@	8.50
No. 2 Sulphite	6.50	@	7.50
No. 3 Sulphite	6.00		7.00
No. 4 Sulphite	5.50		6.50

Book, B Grade, Cased

S. & S. C.	5.85	@	6.60
S. & S. C. Litho.	6.10	@	6.85
M. F.	5.60	@	6.35

No. 4 Grade

Coated and Enamel	6.80	@	7.65
Coated Litho	6.80	@	7.65

Tissues—Per Ream—

White No. 1	.82½	@	—
White No. 1 M. G.	.77½	@	—
White No. 1½	.62½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.67½	@	—
Colored	.80	@	—
Kraft	.67½	@	—
Manila	.60	@	—
Unbleached Toilet	2.60	@	3.30
Bleached Toilet	3.94	@	5.26

Paper Towels—

Unbleached	2.10	@	3.35
Bleached	3.30	@	3.70

Manila—

No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00

Fibre Papers—

No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75

(Delivered New York)

News, per ton—

Roll, contract	41.00	@	—
Sheets	46.00	@	—

Kraft—

No. 1 Northern	4.25	@	4.75
Standard	4.12½	@	—
Southern	4.00	@	—

Boards—per ton—

News	30.00	@32.50
Chip	32.50	@35.00
Sgl. Mla. LL. Chip.	45.00	@47.50
Jute Lined Chip	47.50	@50.00
Kraft Liners	62.50	@65.00
White Pat. Coated	55.00	@60.00
Binders Boards	67.00	@75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—

Moist	24.00	@25.00
Dry	24.00	@25.00

(Delivered)

No. 1 Domestic and Canadian	27.00	@28.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—

Division 1	2.70	@	3.30
Division 2	2.65	@	2.75
Division 3	2.60	@	2.70

Prime Qualities—

Class 1. All Prime Easy Bleaching	2.05	@	2.10

Other Than Easy Bleaching—

Class 2. Higher than Standard	2.00	@	2.05
Class 3, Standard	1.95	@	2.00
Class 4, Lower than Standard	1.90	@	1.95

(On Dock, Atlantic Ports)

Kraft Bleached	3.00	@	3.25
Kraft Light & Strong	2.10	@	2.20
Kraft No. 1	1.85	@	2.10
Kraft No. 2	1.70	@	1.85

(F. o. b. Pulp Mill)

Kraft Domestic	1.80	@	2.00

(Delivered)

Soda Bleached	2.60	@	—

* Add 60 Cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	7.50	@	7.75
Silesias No. 1	5.50	@	5.75
New Unbleached	8.25	@	8.50
New Soft Blacks	3.75	@	4.00
Blue Overall	6.50	@	6.75
Fancy	3.00	@	3.25
Washables	2.25	@	2.50
Mixed Khaki Cuttings	3.50	@	3.75
O. D. Khaki Cuttings	4.25	@	4.50
Men's Corduroy	2.00	@	2.25
New Mixed Blacks	2.75	@	3.00

Old Rags

White, No. 1—			
Repacked	3.25	@	3.50
Miscellaneous	2.75	@	3.00
White, No. 2—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	2.00
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.90	@	2.00
Roofing Rags—			
No. 1	1.75	@	1.80
No. 2	1.15	@	1.25
No. 3 (bagging)	1.10	@	1.15
No. 4	1.10	@	1.15
No. 5A	.80	@	.90

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.50
New Mixed Cuttings	2.00	@	2.25
New Light Silesias	4.50	@	5.00
Light Flannelettes	4.50	@	5.00
New White Cuttings	7.00	@	7.50
New Light Oxfords	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	2.25	@	2.50
French Blue Linens	3.50	@	4.00
German Blue Linens	2.50	@	2.75
German Blue Cottons	2.00	@	2.25
Checks and Blues	2.00	@	2.25
Linsey Garments	2.15	@	2.25
Dark Cottons	1.90	@	2.10
Old Shopperies	1.75	@	2.00
New Shopperies	1.75	@	2.00
French Blues	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.10	@	2.15
Domestic	1.75	@	1.85
Wool Tares, light	1.50	@	1.75
Wool Tares, heavy	1.85	@	2.05
Bright Bagging	1.70	@	1.75
Manila Rope—			
Foreign	2.40	@	2.60
Domestic	2.25	@	2.50
Mixed Strings	1.10	@	1.15
New Burlap Cut	2.75	@	3.00
Hessian Jute Threads—			
Foreign	3.00	@	3.25
Domestic	2.80	@	3.00

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.55	@	2.65
Ordinary Hard White No. 1	2.25	@	2.35
Hard White No. 2	2.10	@	2.20
Soft White No. 1	1.95	@	2.05
Flat Stock—			
Stitchless	.65	@	.75
Over issue Mag	.65	@	.75
Solid Flat Book	.55	@	.60
Crumpled No. 1	.35	@	.40
Solid Book Ledger	1.50	@	1.65
Ledger Stock	.85	@	.90
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.75	@	1.85
New Cuttings	1.35	@	1.45
Bogus Wrapper	.40	@	.50
Old Kraft Machine—			
Compressed bales	1.15	@	1.30
News—			
No. 1 White News	1.15	@	1.25
Strictly Overissue	.50	@	.60
Strictly Folded	.40	@	.45
No. 1 Mixed Paper	.35	@	.40

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EASTON·PENNSYLVANIA

Twines

(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—

India	.13¼	@	.15¾
Belg. White Hemp	.14¼	@	.17¾
India Compress	.13¾	@	.14¾

Fine Polished—

Fine India	.21½	@	.23½
Special	.19½	@	.21½

Unpolished—

Box	.12	@	.12½
Paper Makers	.09	@	.13½
Tube Rope	.10	@	.15½
Wall Paper	.11	@	.14½
Wrapping	.15½	@	.21
Special	.15	@	.15½
Soft Fiber Rope	.12½	@	.12¾

(Hard Fibre)

Bond	.10½	@	.19
Anchor	.10	@	.11½
Manila	.21	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.40
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.07¼
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	42.00	@	—
Sheets, open	47.00	@	—
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—

No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.60	@	.70
Solid Books	.50	@	.60
Blanks	1.00	@	1.05
Krafts	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45

Old Newspapers—

No. 1 Folded News	.42½	@	.45
No. 1 Mixed Paper	.25	@	.30

Roofing Stocks—

No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, M. F.	5.00	@	—
Book, S. S. & C.	5.25	@	—
Book, Coated	6.15	@	—
Coated Lithograph	6.15	@	—
No. 1 Jute Manila	10.50	@	—
Manila Sul., No. 1	6.75	@	—
Manila No. 2	4.25	@	—
No. 1 Kraft	6.00	@	—
Southern Kraft	5.00	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1	.08	@	.08½
New White, No. 2	.04½	@	.05
Light Silesias	.05½		—
Silesias, No. 1	.04½	@	.05
Black Silesias, soft	.03½	@	.04
New Unbleached	.06	@	—
Washable, No. 1	.02	@	.02½
Blue Overall	.06	@	.06½
Cottons—According to grades—			
Washable, No. 2	.02½	@	.04½
New Blue	.01¾	@	.02¼
Fancy	.03	@	—
New Black Soft	.04	@	.04½
New Light Seconds	.03½	@	.04
New Dark Seconds	1.75	@	2.00
Khaki Cuttings—			
No. 1 O. D.	.04	@	.04½
No. 2 Mixed	.03½	@	.04
Corduroy	.02	@	.02¼
New Canvas	.04	@	.04½
New Black Mixed	.02	@	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	4.00	@	4.50
Miscellaneous	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	2.00	@	—
Repacked	2.25	@	2.50
Black Stockings (Export)	4.50	@	5.00
Roofing Stock—			
Foreign No. 1	2.20	@	2.25
Domestic No. 1	1.50	@	—
Domestic No. 2	1.40	@	—
Roofing bagging	1.10	@	—

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	—
Domestic	2.25	@	—
Manila Rope	2.25	@	2.50
Sisal Rope	2.00	@	2.25
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	2.00	@	2.50
No. 2	.90	@	1.00
Wool Tares, heavy	3.00	@	3.25
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.50	@	2.75

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.30	@	2.40
No. 2 Hard White	2.10	@	2.20
No. 1 Soft White	1.80	@	1.85
No. 2 Soft White	1.40	@	1.45
No. 1 Mixed	—	@	.85
Solid Ledger Stock	1.50	@	1.60
Ledger Stock, white	1.15	@	1.20
Ledger Stock, colored	.85	@	.90
No. 1 Books, heavy	.65	@	.70
Manila Cuttings	1.80	@	1.90
Print Manila	.55	@	.60
Container Manila	.55	@	.60
Kraft Paper	1.10	@	1.20
No. 1 Mixed Paper	.45	@	.50
Straw Board Chip	.40	@	—
Binders Board Chip	.40	@	—
Corrugated Board	.60	@	.65
Overissue News	.60	@	—
Old Newspapers	.40	@	—

BOSTON

Paper

Rag Content Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers—
Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50	8.50
No. 2 Sulphite	6.50	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06½
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04½	@	—
No. 2 Kraft	.04½	@	—

(Delivered New England points)

Southern Kraft	.04	@	—
News Print Rolls	39.50	@	—
Straw Board, rolls	.009	—	@35.00
Filled News Board	40.00	@	45.00
Chip Board	37.50	@	40.00
Single Manila Lined Chip	47.50	@	52.50
Single White, Patent Coated News Board (Bender)	55.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.00	@	2.10
No. 1 Soft White	1.75	@	1.85
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.60	@	.70
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.50	@	1.60
No. 1 Old Manila	.60	@	.65
White Blank News	1.10	@	1.15
No. 1 Kraft	1.15	@	—
Mixed Papers	.35	@	—
Print Manila	.55	@	.60
Container Manilas	.57½	@	—
Old Newspapers	.40	@	.42½
Overissue News	.50	@	—
Box Board Chips		@	.25
Corrugated Boxes	.47½	@	.50
Kraft corrugated boxes	.95	@	1.00
Screening Wrappers	.40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	2.40	@	2.55
Domestic	2.50	@	—
Transmission Rope	1.20	@	1.30
Jute Rope	2.12½	@	2.25
Jute Carpet Threads	1.00	@	1.10
Gunny No. 1—			
Foreign	1.90	@	2.00
Domestic	1.75	@	1.80
Bleachery Burlap	4.25	@	4.50
Scrap Burlap—			
Foreign	1.90	@	2.00
Domestic	1.60	@	1.75
Scrap Sisal	1.90	@	2.00
Scrap Sisal for Shredding	2.10	@	2.25
Wool Tares, heavy	1.90	@	2.00
New Burlap Cuttings	2.00	@	2.25
Australian Wool Pouches	2.35	@	2.50
Heavy Baling Bagging	1.85	@	2.20
Paper Mill Bagging	1.65	@	1.70
Bagging No. 2	1.10	@	1.25

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.03½	@	.03¾
New White No. 1	.07¼	@	.07¾
New White No. 2	.04	@	.04½
Silesias No. 1	.06	@	.06¼
New Black Silesias	.03½	@	.04
Soft Unbleached	.07½	@	.08
Blue Cheviot	.06¼	@	.06¾
Fancy	.03	@	.03¼
Washable	.02	@	.0250
Cottons—According to grades—			
Blue Overalls	6.25	@	6.75
New Black, soft	.04	@	.04
Khaki Cuttings	.04	@	.04¼
O. D. Khaki	.03¾	@	.04¼
Corduroy	.02¼	@	.03
New Canvas		@	.03
B.V.D. Cuttings	.07½	@	—

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock—			
No. 1	1.45	@	1.50
No. 2	1.25	@	1.35
No. 3	1.15	@	1.25

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.70	@	2.00
New White Shirt Cuttings	6.50	@	6.75
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	1.75	@	1.90
Old Linsey Garments	2.12½	@	2.37½
New Silesias	5.00	@	5.75

TORONTO

Paper

(F. o. b. Mill)

Bond—			
No. 1 Sulphite	.11	@	—
No. 2 Sulphite	.08½	@	—
No. 1 Colored	.12	@	—
No. 2 Colored	.09	@	—
Ledgers			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F. (Carloads)	6.50	@	—
No. 2 M. F. (Carloads)	6.00	@	—
No. 3 M. F. (Carloads)	6.00	@	—
No. 1 S. C. (Carloads)	7.00	@	—
No. 2 S. C. (Carloads)	6.50	@	—
No. 3 S. C. (Carloads)	6.50	@	—
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	4.80	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	40.50	@	—
Sheets	45.00	@	—

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.25
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.80	@	.90
Light and Crumpled Book Stock	.70	@	.80
Leggers and Writings	.90	@	1.00
Manilas—			
New Manila Cut	1.25	@	1.40
Printed Manilas	.50	@	—
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.55	@	—
Strictly Folded	.50	@	—
No. 1 Mixed Paper	.40	@	—

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.07½	@	.07¾
Fancy Shirt Cuttings	.02¼	@	.03